

8200

GREEN 753

NOTEBOOK COMPUTER

SERVICE MANUAL

Version: 1.0
Dec. 12, 1995

—— GVC/ALPHA-TOP ——

GREEN 753

Chapter 1 Specification

Chapter 2 Power Supply

Chapter 3 **NOTEBOOK COMPUTER**

Chapter 4 Interrupts

Chapter 5 Memory Address Mapping

Chapter 6 I/O Address Mapping

Chapter 7 Connector & Pin Assignment

Chapter 8 INT Function

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Chapter 9 BIOS Setup

Chapter 10 Post Code & Error Handling

Chapter 11 CPU Setting Table

Chapter 12 Schematics

Chapter 13 System Block Diagram

Chapter 14 Main Board Layout Placement

Chapter 15 System & Module Assembly and Disassembly Diagram

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GREEN 753

NOTEBOOK COMPUTER

SERVICE MANUAL

Version 1.0
Dec 15, 1992

GV CALPHIA TOP

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Chapter 1	Specification

Chapter 1 Specification

1..General Description

This document describes the detailed product specification of the notebook.

Green753 is a full function, high performance notebook providing complete multimedia functionalities with 11.8" SVGA color LCD. The notebook has CD-ROM drive built in and optional internal MPEG module which enables the playback motion pictures in most of the CD-ROM titles available in the market.

2..CPU

- Intel P54C, P54LM, P54CSLM and P55C series
- ZIF socket
- 3.3V for basic configuration
- Regulator to match different CPU power rail
(P54C/3.3V, P54LM/2.9V, P54CSLM/2.9V, P55C/2.5V)
- Running up to 166 MHz (internal clock)
(Max. Speed of CPUs:P54C-90, P54LM-100, P54CSLM-150, P55C-166)
- BUS clock up to 66 MHz

3..Core Logic.

- Controller: Opti-Viper chipset
- Supports concurrent 32-bit PCI BUS
- Supports L1 and L2 write back cache
- Supports synchronous burst pipeline 3.3V SRAM
- Supports Local IDE

4..Memory

4.1..Main Memory:

- 8MB on board
- 8/16/32 MB memory card options (72-pin standard DIMM socket x 2)
- 5V DRAM

4.2..ROM:

- 128KB x 2 or 256KB x 1 Flash Memory

4.3..Cache Memory

- 256K write-back cache, synchronous SRAM

5..Mass Storage

5.1..HDD:

- 2.5" ,19 mm HDD space
- Local IDE support

5.2..FDD:

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- 3.5" 720K/1.2MB/1.44MB diskettes support , 1.2MB format support for NEC PC compatibility

5.3..CD-ROM drive:

- Manufacturer: TEAC. Toshiba
- 5.25" CD-ROM
- 4X speed
- IDE interface

6..Video System

6.1..Video Controller: Cirrus Logic 7543

- supports Feature-Connector for MPEG and TV solution
- supports video overlay

6.2..Graphic Feature

- Windows GUI Accelerator
- Full power management feature
- Running on PCI BUS
- Software MPEG
- Support up to 1024×768×256 colors mode on external CRT
- Support 800×600 LCDs

6.3..Video Memory:

- 1MB for standard configuration
- Room for 2MB

6.4..LCD Display:

- The whole assembly is field-interchangeable
- 11.3" /DSTN/SVGA: Hitachi-9900, Sanyo-FE53
- 11.3" or 11.8" /TFT/SVGA: Hitachi, Mitsubishi-ADI

7..I/O Ports

7.1..Standard Ports

- One 16550 UART RS-232 serial port (9-pin male D-connector)
- One parallel port support EPP/ECP (25-pin female D-connector)
- One video port for external analog VGA monitor (15-pin female D-connector)
- One game port (15-pin female D-connector)
- One external auto-sensed PS/2 keyboard/mouse connector(6-pin mini-DIN connector),
- One DC input port for external AC adaptor (4-pin DC jack)
- One Type III and one Type II PCMCIA card socket or two Type II
- Docking Station Connector
- Line in /Line out/ Mic in for internal Sound Card
- IR port, IrDA standard
- Composite video output port for display on TV set
- Game/Midi port

7.2..I/O controller

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- Controllor: Cirrus Logic-6729
- 3.3V/5V card support
- Running on PCI BUS
- Software configurable

8..I/O Devices

8.1..Keyboard:

- US/Europe, DOS/V keyboard for Japan
- 86 keys
- Key stroke: 3 mm
- Twelve function keys
- Inverted "T" cursor control keys layout
- Screwless removable
- Internal keyboard works as standard 101/102 desktop keyboard

8.2..Pointing Device: Touchpad

- Touchpad under space bar of keyboard
- Both external PS/2 mouse and internal pointing device can work concurrently

8.3..Sound System

- Controller: ESS 1788
- Sound Blaster, Sound Blaster Pro Compatible and Microsoft Sound System For Windows compatible
- 16-bit stereo sound
- Microphone and two speaker built-in

8.4..Optional MPEG Module

- Daughter card design
- MPEG I decoder: Winbond
- Video processor: AuraVision VxP-201
- MPEG I decompression
- Support all MPEG related video format such as CDI, VideoCD...etc.
- Video overlay through graphics controller
- Filtering, Scaling and Zooming with 2D interpolation

9..System Software

9.1..System BIOS:

- SystemSoft

9.2..VGA BIOS:

- Cirrus Logic

9.3..Operating System:

- Optional MS-DOS 6.22 or above version
- Optional Windows 3.1 or above version
- Optional OS/2 2.1 for Windows or above version
- Optional Windows NT

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- Optional Windows '95
- 9.4..Device Drivers and Utilities:
- Cirrus Logic: VGA driver and utility
 - ESS: Audio driver
 - Phoenix/SystemSoft: PCMCIA driver
 - ALPS: Touch-pad driver
 - TEAC: CD-ROM driver
 - Comcore: Software MPEG driver(optional)

10..CMOS Setup:

10.1..Normal information

- Displays system information
- Password protection of setup entry
- No cursor stop if item is unchangeable
- Master password support
- Block mode IDE support

11..Power Management System

- Multiple-mode power management scheme
- Static suspend
- Suspend to HDD
- Modem ring and any key triggered resume
- APM1.1 support
- Battery gas gauge support
- Suspend or warning on low battery

12..Power Subsystem

12.1..AC Adapter:

- Small form factor

12.2..Battery:

- Battery pack with 10-cell NiMH or 9-cell Lithium Ion, user interchangeable
- Removable and rechargeable
- Battery gas gauge function support, providing accurate battery charging and discharging status

13..Human Factors

13.1..Dimension:

- 299(W)×230(D)×56 (H)mm
- 11.8" × 9." × 2.2"

13.2..Weight:

- 7 lbs (3.2Kgs) with battery and CD-ROM drive

13.3..Construction Description:

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- LCD assembly is field upgradable with a few screws removed, and main unit is independent to the type of LCD module used
- Speakers are located at two upper corner of the base, and the internal microphone is located at the palm rest area and under the Touchpad module

13.4..LCD indicators:

- A/C- IN
- Battery
- Num Lock
- Caps Lock
- Scroll Lock
- Pad Lock
- HDD
- FDD
- CD-ROM
- PCMCIA
- SUSPEND

13.5..Hot Key:

- LCD brightness
- LCD contrast
- Audio Volume
- Display mode
- Suspend

14..Docking Station: Mini Docking

15..Accessories

- User's manual
- AC adapter
- Power cord
- Utility diskette
- Carrying bag
- Mini-docking (port replicator)
- External Charger

16..Optional Items

- Spare battery pack
- Memory expansion card
- MPEG module
- DOS
- Windows
- Windows95
- OS/2 for Windows
- Windows NT

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17..Environment

17.1..Temperature:

- Operating: 5°~35°C
- Non-operating: -20°~60°C

17.2..Humidity:

- Operating: 30%~90% (non-condensing)
- Non-operating: 5%~95% (non-condensing)

17.3..Altitude:

- Operating: -200~10000 ft
- Non-operating: -200~30000 ft

17.4..Shock:

- Operating: 10G, 11ms
- Non-operating: 50G, 11ms

17.5..Vibration:

- Operating: 10~27 Hz, 0.01"
- Non-operating: 5~62 Hz, 0.02"

17.6..Drop:

- 900mm

17.7..Noise:

- 35dB (max.) at 1 meter

17.8..ESD:

- Follow IEC 801-2 standard
- 0~15KV: no error allowed

17.9..P.L.T.:

- 1KV: no any error

18..Regulation

18.1..Safety:

- UL 1950, CSA, TUV, CE

18.2..EMI:

- FCC class B, BZT, VCCI

19..MTBF

- 20,000 hrs, 90% confidence level

20..MTTR

- 30 min.

DOCUMENTATION

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1. Name of the person or organization	2. Address
---------------------------------------	------------

ADDITIONAL INFORMATION

1. Description

The above named person or organization is a ...
 who is ...
 and ...
 who is ...
 and ...

2. Purpose

The purpose of the ...

1. Name of the person or organization	2. Address	3. City	4. State	5. Zip

The above named person or organization is a ...
 who is ...
 and ...

3. Remarks

The above named person or organization is a ...
 who is ...
 and ...

4. Signature

The above named person or organization is a ...
 who is ...
 and ...

1. Introduction

2. Purpose

3. Scope

4. Definitions

5. References

6. Description of the Project

7. Objectives

8. Methodology

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Chapter 2 Power Supply

ADAPTER SPECIFICATION

Input Characteristics:

- * Input Voltage Range: 100Vac to 240Vac, single phase.
- * Input Frequency Range: 47 Hz to 63 Hz.
- * Max. Input Ac Current: 1 A, 90Vac input, full load.
- * Inrush Current(coldstart): 20A @ 115Vac, 40A @ 230Vac @max. load 25 DEG.C.
- * Efficiency: 75% min, at 115Vac input, full load, after warm up 30 sec.

Output Characteristics:

Static Output Characteristics (VO):

Output Voltage	Load	Range	Regulation	Ripple & Noise
1 +19V	Min. 0A	Max. 1.8A	+/- 1V	250 mV

- * Ripple & Noise Test: Use 20MHz bandwidth frequency oscilloscope.
- * Add 0.1 uF/10uF capacitor at output connector terminals for ripple & noise test.

Dynamis Output Characteristics:

- * Turn-on Delay Time: 2 sec max. @ 115Vac, full load.
- * Hold up Time: 10 mS min, @ 115Vac, full load.
- * Short Circuit Protection: Output can be shorted without damage.

Dielectric Withstand Voltage:

- * Primary To Secondary: 1500 Vac 10 mA max, at 120 Vac 60 Hz.
- * Leakage Current: 0.75 mA max, at 120 Vac 60 Hz.

Chapter 2

RFI/EMI: Internal filter to meet

- * FCC part 15 class B.
- * VFG 243/1991.

Product Safety:

- * This power supply is designed to meet the following spec.:

- 1.) UL 1950
- 2.) CSA C22.2 Level 3
- 3.) TUV EN60 950

Environment:

- * Operating Temperature: 0 to 40 degree C.
- * Operating Relative Humidity: 15 to 85%.
- * Storage Temperature: -10 to 85 degree C.
- * Storage Relative Humidity: 5 to 90%.
- * Altitude: Operate properly at any altitude between 0 to 10,000 feet.
- * Vibration:

Operating: 0.75G zero to peak, 5 to 500 Hz, 0.5 octave/minute, one cycle,
5 to 500 to 5 Hz per axis in each of three mutually perpendicular axis.

Non-operating: 1.5G zero to peak, 5 to 50 Hz, 0.5 octave/minute, one cycle,
5 to 500 to 5 Hz per axis in each of three mutually perpendicular axis.

DC/DC POWER SPECIFICATION

Introduction:

- * High efficiency, DC/DC converter for notebook computer.

Input Characteristics:

Input voltage range:

- * AC/DC adapter: +19V(±1V).
- * Battery: 10 cells for NiMH Battery.(Optional Lithium-Ion 9 cells.)

Input current range:

- * From adapter: 1.8 A max(including charger).
- * From battery: 2.2 A(typ.).

Input pin assignment:

- * Input jack: (1) SENSE (2) VA (3) GND (4) GND
- * Battery input connector: (1) VB (2) GND (3) BTID (4) NTC1 (5) NTC2 (6) DQ

Description:

- * VA: connected to charge source.
- * VB: discharge path for battery.
- * GND: system ground.
- * DQ: battery gauge.
- * NTC1 & NTC2: both pins of NTC Thermister
- * BTID: Battery ID(the type of battery).

Output Characteristics:

Output voltage parameter:
+5V O/P:

PARAMETER	SYMBOL	UNIT	MIN	NOM	MAX
Output current	Iout	Adc	0		3
O/P Surge current	Isur	Adc			3.5
Output voltage	Vout	Vdc	4.75	5	5.25
O/P Ripple	Vrip	mV(p-p)			100
OCP	Ilim	Adc			4

Chapter 2

+3.3V O/P:

PARAMETER	SYMBOL	UNIT	MIN	NOM	MAX
Output current	I _{out}	A _{dc}	0		3
O/P Surge current	I _{sur}	A _{dc}			3.5
Output Voltage	V _{out}	V _{dc}	3.3	3.45	3.6
O/P Ripple	V _{out}	mV(p-p)			100

+12V O/P:

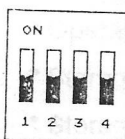
PARAMETER	SYMBOL	UNIT	MIN	NOM	MAX
Output current	I _{out}	mA _{dc}	0		150
O/P Surge current	I _{sur}	mA _{dc}			200
Output Voltage	V _{out}	V _{dc}	1.4	12	12.6
O/P Ripple	V _{out}	mV(p-p)			240

+2.5V /+2.9V /+3.1V /+3.3V O/P:

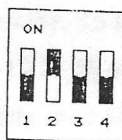
	MIN	NOM	MAX
O/P Current	0		3
Surge Current			3.5
Ripple			100

- * Remark: 1. The voltage is adjusted by a switch(sw3).
2. The voltage tolerance is $\pm 5\%$.

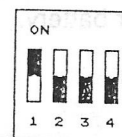
2.5V



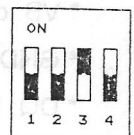
2.9V



3.1V



3.3V



Charger Characteristics:

Charger current:

- 1) Quick Charge: 1.8~2.2A
- 2) Puls Trickle Charge: 1.8~2.2A

PARAMETER	SYMBOL	UNIT	MIN	NOM	MAX
Output current	I _{out}	A _{dc}	0		3
O/P Surge current	I _{sur}	A _{dc}			3.5
Output voltage	V _{out}	V _{dc}	3.3	3.45	3.6
O/P Ripple	V _{out}	mV(p-p)			100
OCP	I _{lim}	A _{dc}			4

Chapter 2

Charger Control:

- 1-delta temperature / delta time
- 2-Max voltage
- 3-Max temperature
- 4-Safety time
- 5-Negative delta voltage

Efficiency:

0.8 min

Test Condition:

- * VBA: From adapter or battery
- * +5V: 3A
- * +3.3V: 3A
- * +12V: 150mA
- * +2.5V /+2.9V /+3.1V /+3.3V: 3A

Protection:

- * OCP: Over Current Protection.
 - +5V Protection: 4A min
 - +3.3V Protection: 4A min
 - +2.5V /+2.9V /+3.1V /+3.3V Protection: 4A min

Humidity:

- * Operating: 15-85% non-condensing
- * Storage: 5-90% non-condensing

Temperature:

- * Operating: 0~40 degree C
- * Storage: -20~+70 degree C

Burn-In:

- * 24 hours at 40 degree C, normal input voltage, full load.

Chapter 2

Parameter	Symbol	Unit	Typical Value
Input Voltage	V_{in}	V	5.0
Output Voltage	V_{out}	V	1.2
Output Current	I_{out}	A	1.0
Efficiency	η	%	85

Output Current

1- Delta temperature 1 delta temp

2- Max voltage

3- Max temperature

4- Safety time

5- Negative delta voltage

Efficiency

1.0 min

Parameter	Symbol	Unit	Typical Value
Input Voltage	V_{in}	V	5.0
Output Voltage	V_{out}	V	1.2
Output Current	I_{out}	A	1.0
Efficiency	η	%	85

Test Condition

* VEA From adapter or battery

* 25V 3A

* 3V 3A

* 12V 120mA

* 2.5V 2.5V 1.5V 3V 3A

Parameter	Symbol	Unit	Typical Value
Input Voltage	V_{in}	V	5.0
Output Voltage	V_{out}	V	1.2
Output Current	I_{out}	A	1.0
Efficiency	η	%	85

Protection

* OCP: Over Current Protection

+5V Protection: 4A min

+3.3V Protection: 4A min

+2.5V 2.5V 1.5V 3V Protection: 4A min

Humidity

* Operating: 10% ~ 90% non-condensing

* Storage: 5~90% non-condensing

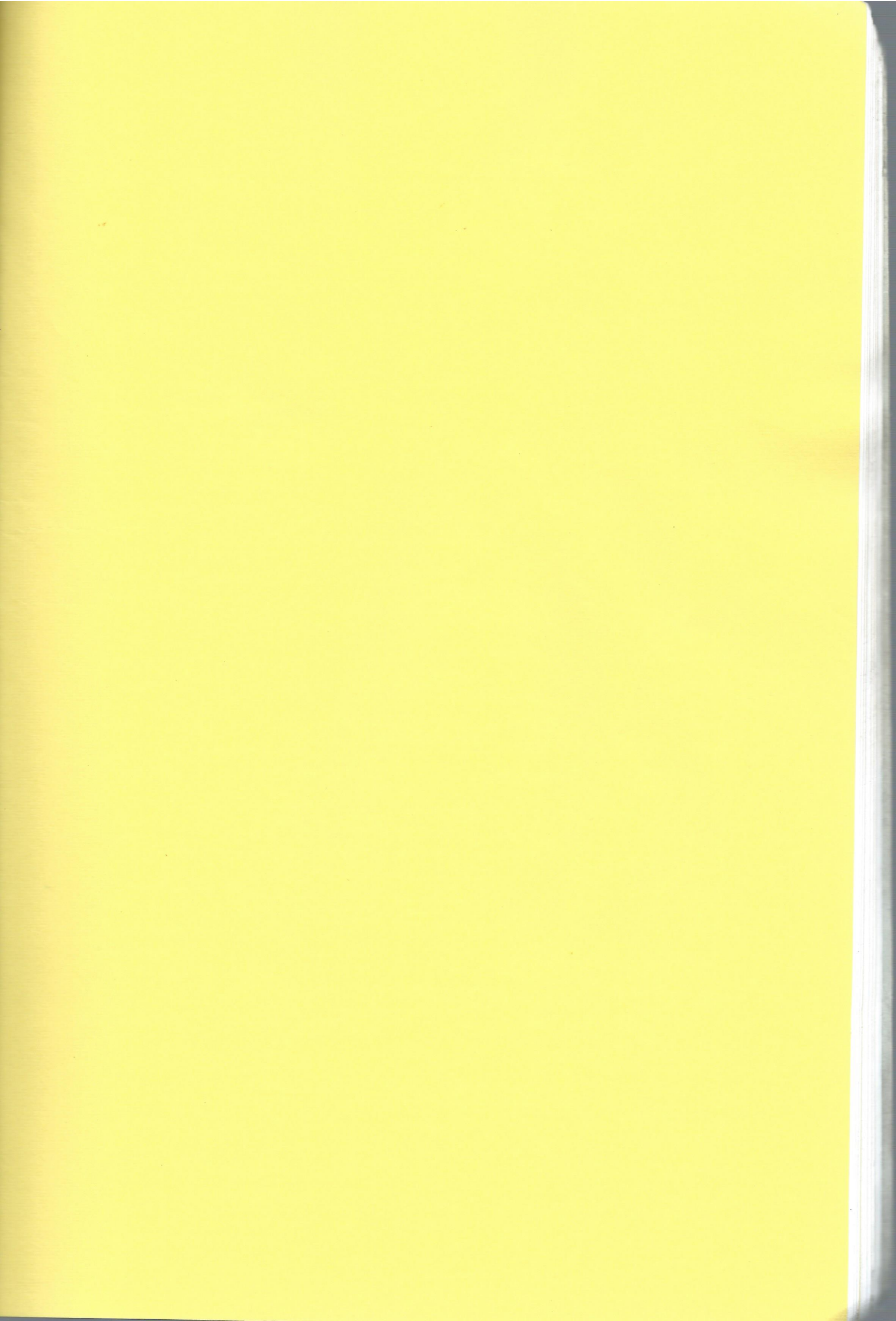
Temperature

* Operating: 0~40 degrees C

* Storage: -20~70 degrees C

Burn-in

* 24 hours at 40 degrees C normal rated voltage and load



Chapter 3 DMA, Timer/Counter

DMA channel:

DMA Channel No.	Function
Channel 0	Available
Channel 1	Sound Module
Channel 2	Floppy Disk
Channel 3	ECP Support
Channel 4	[Cascade]
Channel 5	Available
Channel 6	Available
Channel 7.	Available

Programmable Timer/Counters

Channel No	Function
Channel 0	Supports system timer
Channel 1	Supports refresh cycles
Channel 2	Supports the audio speaker

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Chapter 2

Chapter 4 Interrupts

Interrupt	Function
IRQ 0	System Timer
IRQ 1	Keyboard
IRQ 2	[Cascade]
IRQ 3	COM2 (IrDA)
IRQ 4	COM1
IRQ 5	Parallel Printer Port 2
IRQ 6	Floppy Disk
IRQ 7	Parallel Printer Port 1
IRQ 8	Clock/Calendar
IRQ 9	Cascaded to INT 0AH (IRQ 2) / Sound Module
IRQ 10	MPEG Card
IRQ 11	PCMCIA Socket Service
IRQ 12	Touch-Pad
IRQ 13	Coprocessor
IRQ 14	Fixed Disk Controller
IRQ 15	Reserved

Note: 1. IRQ 3, 4, 5, 7, 9, 10, 11, 12, 14 are connected to PCMCIA controller, but available for PCMCIA function only when the IRQ is not used by other device.

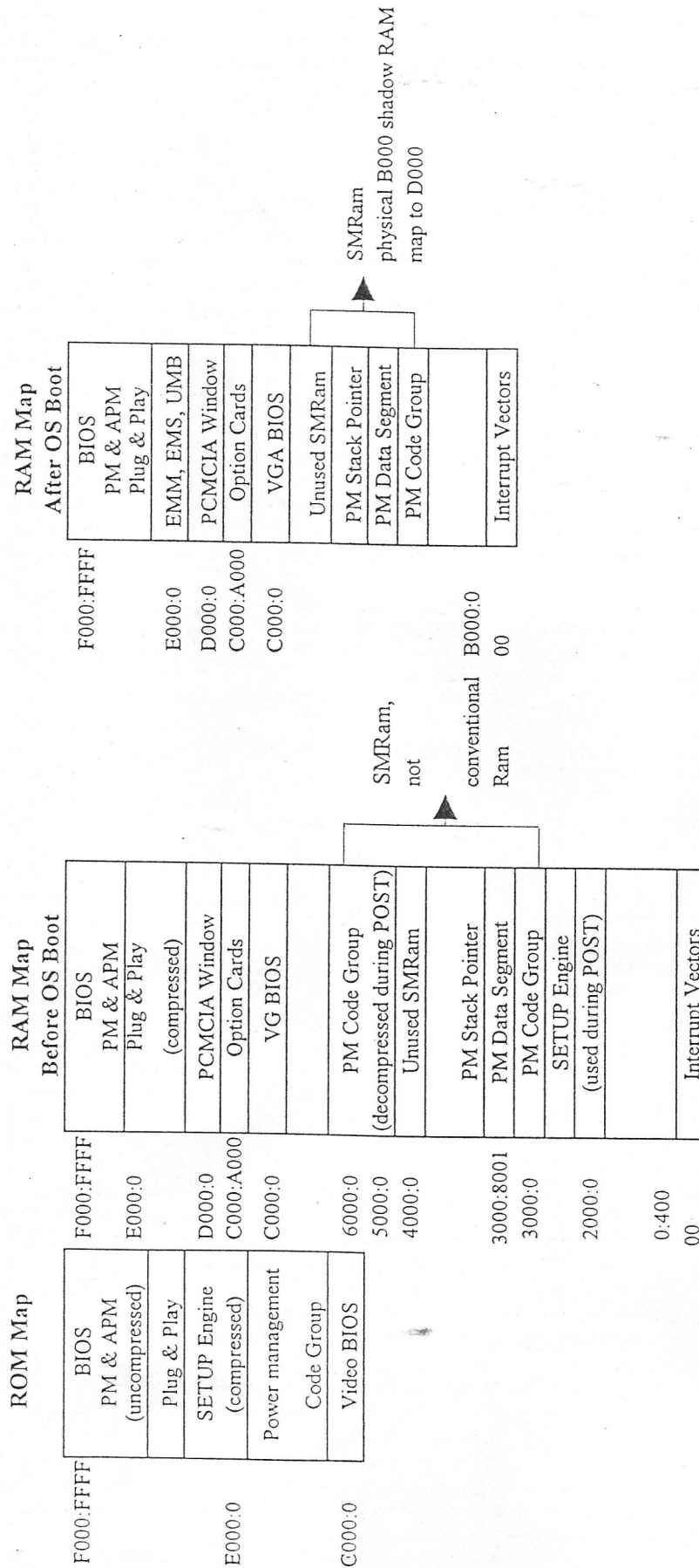
2. IRQs connected to Docking Port are IRQ 3-5, 7, 9, 10-12, 14, 15.

Interrupt	Function
IRQ 0	System Timer
IRQ 1	Keyboard
IRQ 2	(Cascaded)
IRQ 3	COM2 (LDA)
IRQ 4	COM1
IRQ 5	Parallel Printer Port 2
IRQ 6	Floppy Disk
IRQ 7	Parallel Port 2 (LDA)
IRQ 8	Clock Generator
IRQ 9	Cascaded to IRQ 2 (IRQ 2) / Sound Module
IRQ 10	MPEG Card
IRQ 11	PCMCIA Socket
IRQ 12	Touch-Pad
IRQ 13	Coprocessor
IRQ 14	Fixed Disk Controller
IRQ 15	Reserved

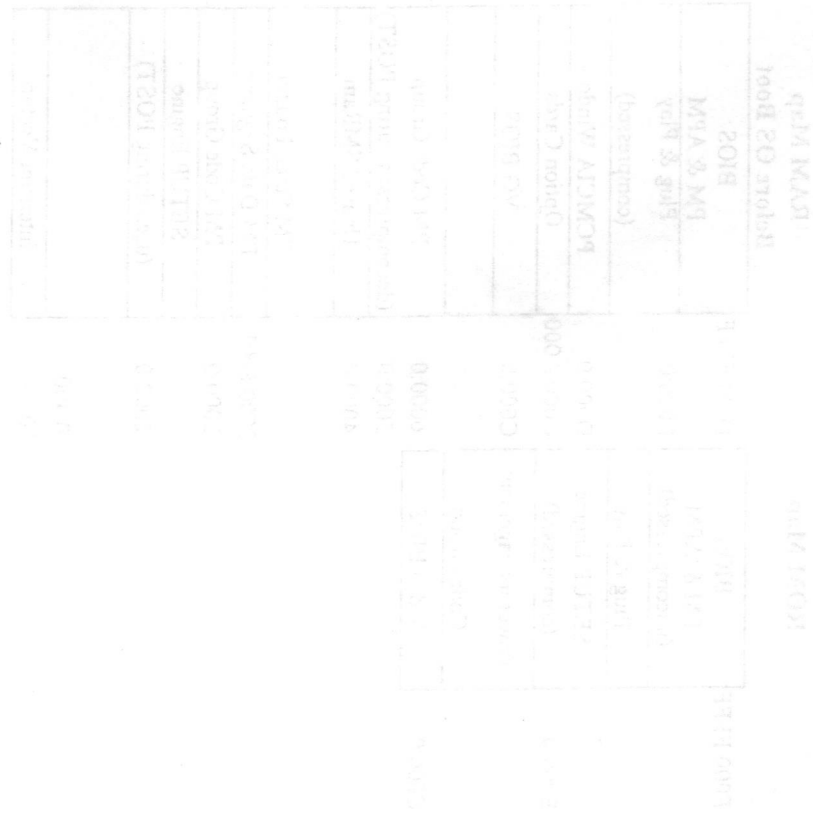
1 Note: IRQs 2, 4, 5, 6, 10, 11, 12, 13 are reserved for PCMCIA controller, but available for PCMCIA function only when the IRQ is not used by other device.

2 IRQs connected to DisplayPort are IRQ 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.

Chapter 5 Memory Address Mapping



Chapter 5 Memory Address Mapping



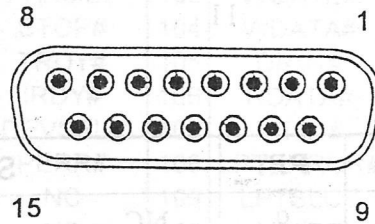
16MB 00000000-16MB 0000FFFF

16MB 00010000-16MB 0001FFFF

Chapter 6 I/O Address Mapping

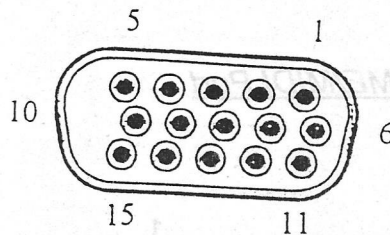
Hexadecimal Range	Devices	Usage
000-01F	DMA controller 1	System
020-03F	Interrupt controller 1	System
040-05F	Timer	System
060-06F	Keyboard I/O	System
070-07F	Real time clock, NMI mask	System
080-09F	DMA page register	System
0A0-0BF	Interrupt controller 2	System
0C0-0DF	DMA controller 2	System
0F0	Clear math coprocessor busy	System
0F1	Reset math coprocessor	System
0F8-0FF	Math coprocessor	System
1F0-1F8	Fixed disk	I/O
200-207	Game	I/O
278-27F	Parallel printer port 2	I/O
2F8-2FF	Serial port 2	I/O
300-31F	Prototype card	I/O
360-36F	Reserved	I/O
378-37F	Parallel printer port 1	I/O
380-38F	SDLC, bisynchronous 2	I/O
3A0-3AF	Bisynchronous 1	I/O
3B0-3BF	Mono display printer adapter	I/O
3C0-3CF	Reserved	I/O
3E0-3EF	Color/graphic monitor adapter	I/O
3F0-3F7	PCMCIA controller	I/O
3F8-3FF	Serial port 1	I/O

Hexadecimal Range	Device	Usage
000-00F	DMA controller 1	System
010-01F	Interrupt controller 1	System
020-02F	Timer	System
030-03F	Keyboard I/O	System
040-04F	Real-time clock (RTC)	System
050-05F	DMA page register	System
060-06F	Interrupt controller 2	System
070-07F	DMA controller 2	System
080-08F	System with coprocessor bus	System
090-09F	System with coprocessor	System
0A0-0AF	Cache controller	System
0B0-0BF	Cache controller	System
0C0-0CF	Cache controller	System
0D0-0DF	Cache controller	System
0E0-0EF	Cache controller	System
0F0-0FF	Cache controller	System
100-10F	Cache controller	System
110-11F	Cache controller	System
120-12F	Cache controller	System
130-13F	Cache controller	System
140-14F	Cache controller	System
150-15F	Cache controller	System
160-16F	Cache controller	System
170-17F	Cache controller	System
180-18F	Cache controller	System
190-19F	Cache controller	System
1A0-1AF	Cache controller	System
1B0-1BF	Cache controller	System
1C0-1CF	Cache controller	System
1D0-1DF	Cache controller	System
1E0-1EF	Cache controller	System
1F0-1FF	Cache controller	System

The Pin Assignment of GAME/MIDI Port

Pin	Signal	Pin	Signal
1	VCC	9	VCC
2	Joystick Switch A	10	Joystick Switch C
3	Joystick Data A	11	Joystick Data C
4	GND	12	MIDI OUT
5	GND	13	Joystick Data D
6	Joystick Data B	14	Joystick Switch D
7	Joystick Switch B	15	MIDI IN
8	VCC		

The Pin Assignment of Video Port

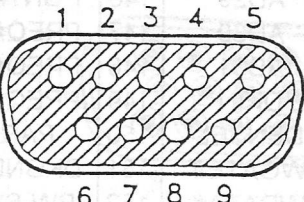


Pin	Signal	Pin	Signal
1	Red	9	NC
2	Green	10	Ground
3	MS2	11	MS0
4	NC	12	MS1
5	Ground	13	Horizontal Sync
6	Ground	14	Vertical Sync
7	Ground	15	NC
8	Ground		

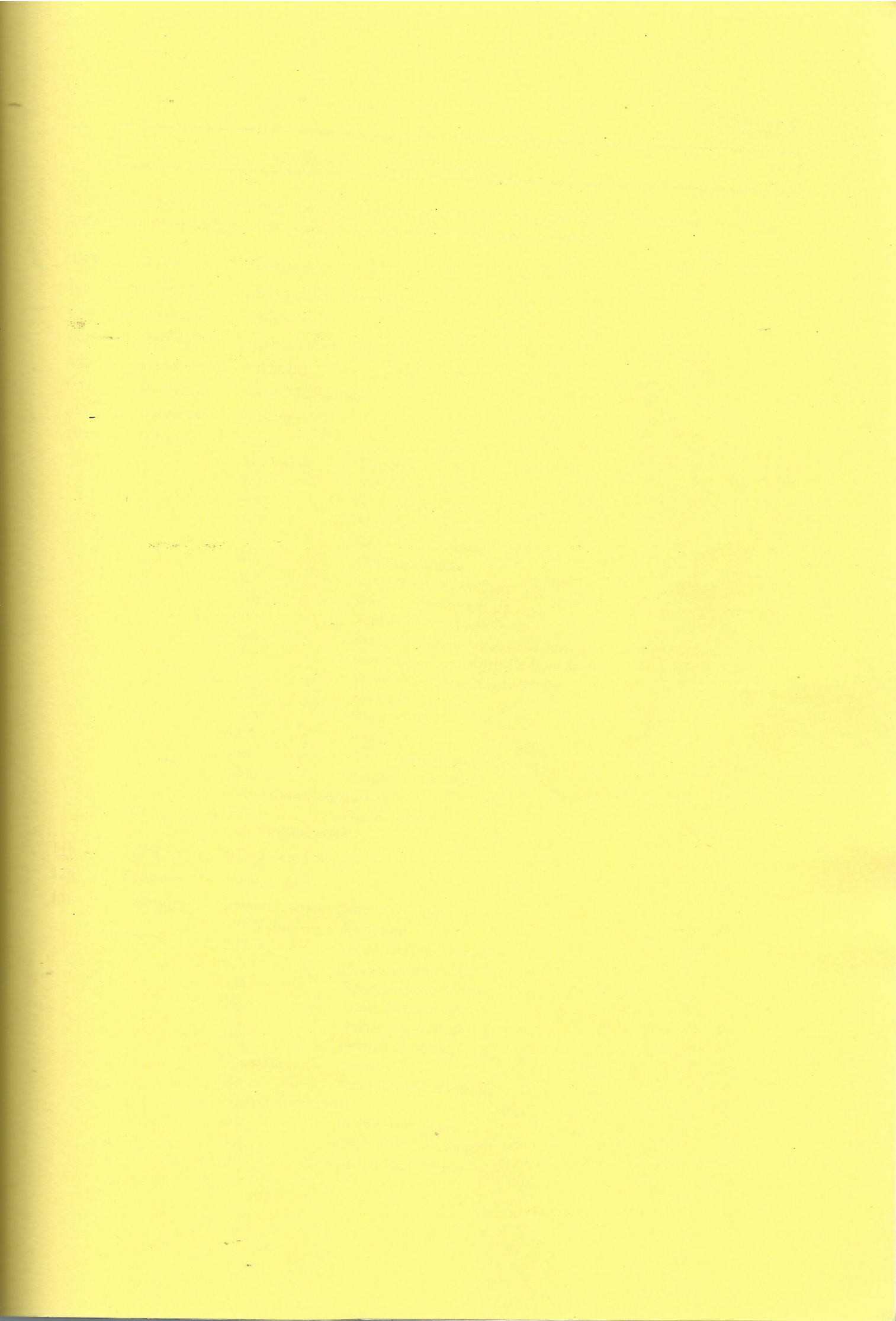
G753 DOCKING SIGNAL LIST

Pin	SYMBOL	Pin	SYMBOL	Pin	SYMBOL	Pin	SYMBOL	Pin	SYMBOL
1	SENSE	49	AD11	97	AD28	145	PGNT#1	193	SA2
2	SENSE	50	AD12	98	AD29	146	PGNT#2	194	SA3
3	VDPCLD	51	AD13	99	AD30	147	PREQ#0	195	SA4
4	SCL	52	AD14	100	AD31	148	PREQ#1	196	SA5
5	SDA	53	AD15	101	DKIN	149	PREQ#2	197	SA6
6	UV0	54	RESET#	102	DENSEL	150	PAR	198	SA7
7	UV1	55	FRAME#	103	WGATE#	151	DKGND#	199	SA8
8	UV2	56	STOP#	104	WDATA#	152	PW-SW	200	LA9
9	UV3	57	TRDY#	105	DRV1#	153	CLK-PCI3	201	VA
10	UV4	58	IRDY#	106	RDATA#	154	NC	202	VA
11	UV5	59	DEVSEL#	107	MTR1#	155	GND	203	VA
12	UV6	60	PERR#	108	LPTERROR#	156	DCDO	204	VA
13	UV7	61	NC	109	LPTSLCT	157	DSRO	205	VA
14	Y0	62	NC	110	LPTPE	158	SINO	206	VA
15	Y1	63	NC	111	LPTBUSY	159	RTSO	207	VA
16	Y2	64	FP23	112	LPTACK#	160	SOUTO	208	VA
17	Y3	65	FCBLANK#	113	LPTAFD#	161	CTSO	209	ON2/3
18	Y4	66	FCDCLK	114	LPTINIT#	162	DTRO	210	NC
19	Y5	67	FP22	115	LPTSLCTIN#	163	RIO	211	NC
20	Y6	68	FCEVIDEO#	116	LPTSTB#	164	RXD1	212	NC
21	Y7	69	FCESYNC#	117	PD0	165	TXD1	213	NC
22	VD-HSYNC	70	NC	118	PD1	166	RTS1#	214	NC
23	VD-VSYN	71	RED	119	PD2	167	DTR1#	215	NC
24	VCC	72	GREEN	120	PD3	168	CTS1#	216	+12V
25	VCC	73	BLUE	121	PD4	169	DSR1#	217	+12V
26	GND	74	EHSYNC	122	PD5	170	DCD1#	218	+12V
27	GND	75	EVSYN	123	PD6	171	RI1#	219	GND
28	FP16	76	INDEX#	124	PD7	172	NC	220	GND
29	FP17	77	WP#	125	KBDATA	173	NC	221	GND
30	FP18	78	DSKCHG#	126	KBCLK	174	NC	222	SWA
31	FP19	79	STEP#	127	MSCLK	175	NC	223	SWB
32	FCP4	80	FDIR#	128	MSD	176	NC	224	SWC
33	FCP5	81	TRKD#	129	BMSIN	177	TVL	225	SWD
34	FCP6	82	HDSEL#	130	BMSOUT	178	TVL	226	BJDD
35	FCP7	83	SERR#	131	RST#	179	TVR	227	BJDC
36	GND	84	PLOCK	132	WAVE-R	180	TVR	228	BJDB
37	GND	85	AD16	133	WAVE-L	181	SD0	229	BJDA
38	AD0	86	AD17	134	WAVE-R	182	SD1	230	NC
39	AD1	87	AD18	135	WAVE-L	183	SD2	231	NC
40	AD2	88	AD19	136	C/BE#0	184	SD3	232	NC
41	AD3	89	AD20	137	C/BE#1	185	SD4	233	NC
42	AD4	90	AD21	138	C/BE#2	186	SD5	234	NC
43	AD5	91	AD22	139	C/BE#3	187	SD6	235	MDATA
44	AD6	92	AD23	140	INT#A	188	SD7	236	MCLK
45	AD7	93	AD24	141	INT#B	189	IOW#	237	NC
46	AD8	94	AD25	142	INT#C	190	AEN		
47	AD9	95	AD26	143	INT#D	191	SA0	300	NC
48	AD10	96	AD27	144	PGNT#0	192	SA1		

The Pin Assignment of COM Port



Pin	Signal	Pin	Signal
1	Carrier Detect	6	Data Set Ready
2	Receive Data	7	Request to Send
3	Transmit Data	8	Clear to Send
4	Data Terminal Ready	9	Ring Indicate
5	Signal Ground		



Chapter 8 INT Function

The following lists the available interrupt services made through the system BIOS. For detailed information about each function, refer to any one of the many books on interrupts.

INT	Type	Function
02	Logical	Nonmaskable Interrupt
05h	Software	Print Screen
08h	Hardware	System Timer
09h	Hardware	Keyboard
0Ah	Hardware	Slave PIC Redirect
0Eh	Hardware	Diskette
10h	Software	Video
		AH Value Function
		00h Set Video Mode
		01h Set Cursor Type
		02h Set Cursor Position
		03h Read Current Cursor Position
		04h Not Supported
		05h Select New Video Page
		06h Scroll Current Page Up
		07h Scroll Current Page Down
		08h Read Character/Attribute to Screen
		09h Write Character/Attribute from Screen
		0Ah Write Character Only to Screen
		0Bh Set Color Palette
		0Ch Write Pixel
		0Dh Read Pixel
		0Eh Write Teletype to Active Page
		0Fh Return Video Status
		10h-12h Not Supported
		13h Write String
		14h-FFh Reserved
11h	Software	Equipment List
12h	Software	Memory Size
13h	Software	Diskette Service (Interrupt 40h)
		AH Value Function
		00h Reset Diskette System
		01h Read Diskette Status
		02h Read Diskette Sectors
		03h Write Diskette Sectors
		04h Verify Diskette Sectors
		05h Format Diskette Track
		06h, 07h Reserved
		08h Read Drive Parameters
		09h-14h Reserved
		15h Read Drive Type
		16h Detect Media Change
		17h Set Diskette Type

Chapter 8

BIOS Interrupts Continued...

INT	Type	Function
		18h Set Media Type for Format
		19h-FFh Reserved
13h	Software	Hard Disk Services
		AH Value Function
		00h Reset Disk System
		01h Read Disk Status
		02h Read Disk Sectors
		03h Write Disk Sectors
		04h Verify Disk Sectors
		05h Format Disk Cylinder
		06h, 07h Reserved
		08h Read Drive Parameters
		09h Initialize Drive Parameters
		0Ah Read Long Disk Sectors
		0Bh Write Long Disk Sectors
		0Ch Seek to Cylinder
		0Dh Alternate Reset Fixed Disk
		0Eh Diagnostics 1, Read Test Buffer
		0Fh Diagnostics 2, Write Test Buffer
		10h Test for Drive Ready
		11h Recalibrate Drive
		12h-14h Reserved
		15h Read Disk Type
		16h-18h Reserved
		19h, 1Ah Not Supported
		1Bh-FFh Reserved
14h	Software	Serial Communication
		AH Value Function
		00h Initialize Serial Communications Port
		01h Send Character
		02h Receive Character
		03h Read Serial Port Status
		04h-FFh Reserved
15h	Software	System Services
		AH Value Function
		00h-4Eh Reserved
		4Fh Keyboard Intercept
		50h-7Fh Reserved
		80h Device Open
		81h Device Close
		82h Program Termination
		83h Set Event Wait Interval
		84h Joystick Support
		85h System Request Key
		86h Wait
		87h Move Block
		88h Read Extended Memory Size
		89h Switch Processor to Protected Mode

Chapter 8

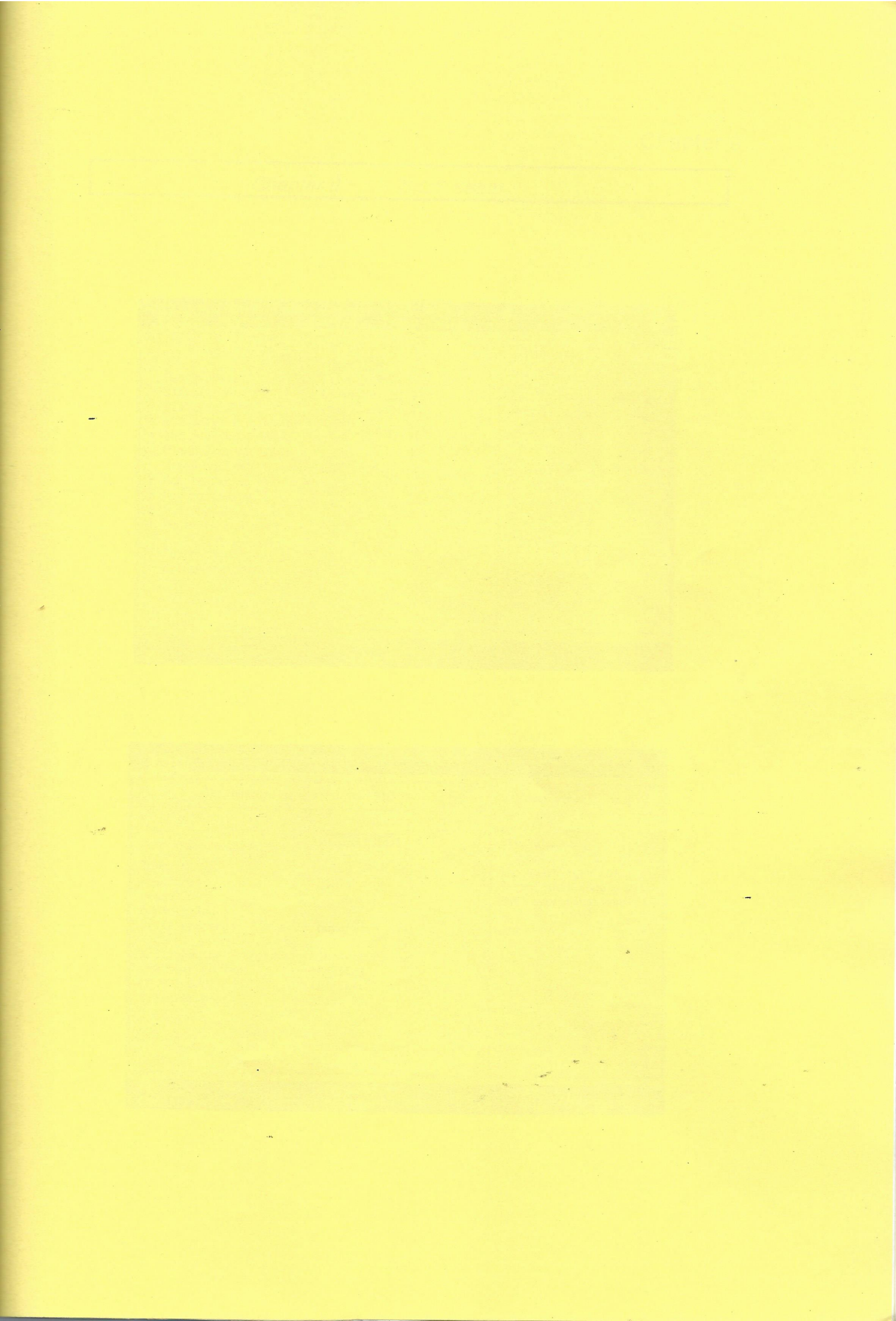
BIOS Interrupts Continued...

INT	Type	Function
		8Ah-8Fh Reserved
		90h Device Busy Loop
		91h Interrupt Complete
		92h-BFh Reserved
		C0h Return System Configuration Parameters
		C1h Return Extended BIOS Data Area Segment Address
		C2h Pointing Device Interface
		C3h-FFh Reserved
16h	Software	Keyboard
		AH Value Function
		00h Read Keyboard Input
		01h Return Keyboard Status
		02h Return Shift Flag Status
		03h Set Typematic Rate and Delay
		04h Reserved
		05h Store Key Data
		06h-0Fh Reserved
		10h Read Extended Key Input
		11h Return Extended Keyboard Status
		12h Return Extended Shift Flags Status
		13h-FFh Reserved
17h	Software	Parallel Printer
		AH Value Function
		00h Print Character
		01h Initialize Printer
		02h Read Printer Status
		03h-FFh Reserved
18h	Software	Load ROM BASIC
19h	Software	Bootstrap Loader
1Ah	Software	System Timer and Real-Time Clock
		AH Value Function
		00h Read System Timer Time Counter
		01h Set System Timer Time Counter
		02h Read Real Time Clock Time
		03h Set Real Time Clock Time
		04h Read Real Time Clock Date
		05h Set Real Time Clock Date
		06h Read Real Time Clock Alarm
		07h Set Real Time Clock Alarm
		08h Read Day of Week from Real Time Clock (SystemSoft only)
		09h Write Day of Week to Real Time Clock (SystemSoft only)
		0Ah-FFh Reserved
1Bh	Software	Keyboard Break
1Ch	User	User Timer Tick
1Dh	BIOS Table	Video Parameters Table
1Eh	BIOS Table	Diskette Parameters Table

Chapter 8

BIOS Interrupts Continued...

INT	Type	Function
1Fh	User	Video Graphics Characters
40h	Software	Diskette BIOS Revector
41h	BIOS Table	Fixed Disk Parameter Table
46h	BIOS Table	Fixed Disk Parameter Table
70h	Hardware	Real Time Clock
71h	Hardware	Redirect Cascade
74h	Hardware	Pointing Device (Mouse)
76h	Hardware	Fixed Disk
+ Any 80386 and/or coprocessor exception interrupts normally handled by the operating system are vectored by default to the BIOS at system power-on.		



Chapter 9 BIOS Setup

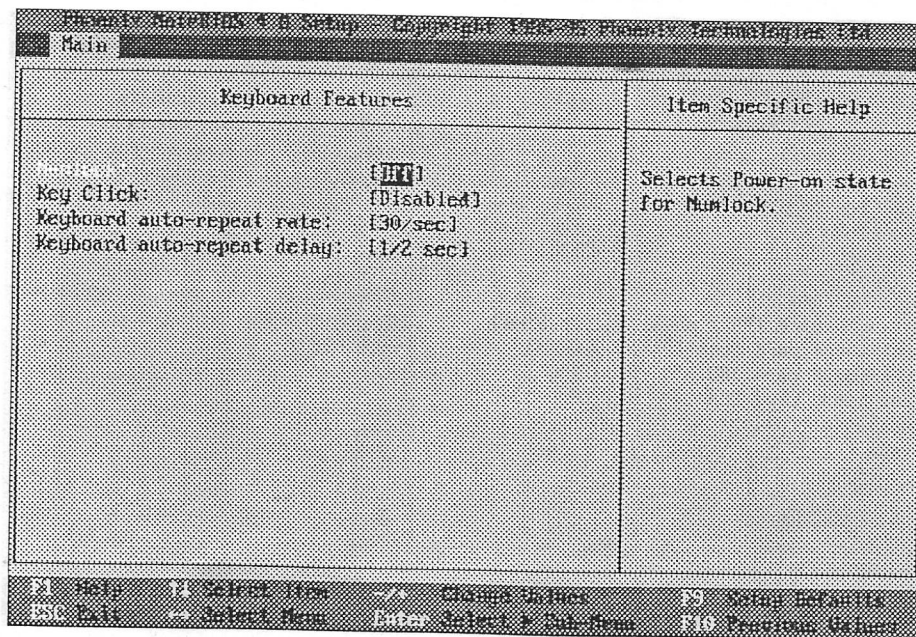
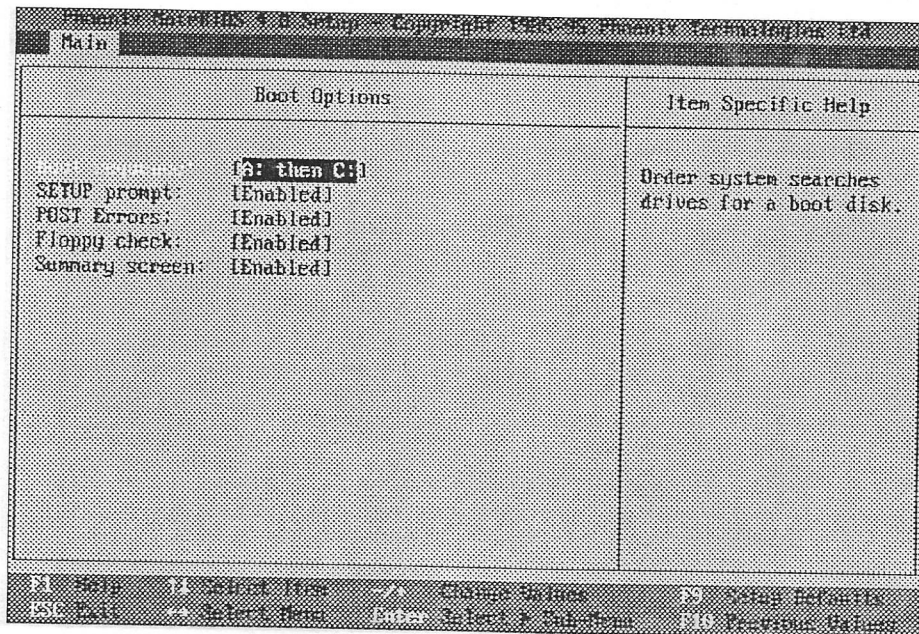
Phoenix BIOS 4.0 Setup - Copyright 1988-95 Phoenix Technologies Ltd.	
Main Advanced Security Power Savings Exit	
System Time: [17:23:20]	Item Specific Help (Tab), <Shift-Tab>, or <Enter> selects field.
System Date: [11/01/1995]	
Diskette A: [1.44 MB, 3 1/2"]	
Diskette B: [Not Installed]	
IDE Adapter 0 Master (C: 810 Mb)	
IDE Adapter 0 Slave: (None)	
Video Display Device: [LCD]	
Video System: [EGA / VGA]	
Memory Cache	
Memory Shadow	
Boot Options	
Keyboard Features	
System Memory: 640 KB	
Extended Memory: 7168 KB	
F1 Help F2 Select Item F4 Change Values F5 Setup Defaults ESC Exit → Select Item Enter Select & Confirm F10 Partition Values	

Phoenix BIOS 4.0 Setup - Copyright 1988-95 Phoenix Technologies Ltd.		
Main Advanced Security Power Savings Exit		
IDE Adapter 0 Master (C: 810 Mb)		
Autobios Floppy Disk: [Press Enter]	Item Specific Help Attempts to automatically detect the drive type for drives that comply with ANSI specifications.	
Type: [Auto] 810 Mb		
Cylinders: 1571		
Heads: 16		
Sectors/Track: 63		
Write Precomp: None		
Multi-Sector Transfers: 16 Sectors		
LBA Mode Control: Enabled		
32 Bit I/O: [Disabled]		
Transfer Mode: Fast PIO 3		
F1 Help F2 Select Item F4 Change Values F5 Setup Defaults ESC Exit → Select Item Enter Select & Confirm F10 Partition Values		

Chapter 9

Phoenix BIOS 4.0 Setup - Copyright 1995-96 Phoenix Technologies Ltd.		
Main		
Memory Cache		Item Specific Help
External Cache:	[Enabled]	Sets the state of the external system memory cache.
Primary Cache Write Mode:	[Write Back]	
Secondary Cache Write Mode:	[L2 Write Back]	
Cache System BIOS:	[Disabled]	
Cache Video BIOS:	[Disabled]	
Non-cacheable Regions		
Region 0, start:	[0 KB]	
Region 0, size:	[Disabled]	
Region 1, start:	[0 KB]	
Region 1, size:	[Disabled]	
F1 Help	F2 Select Item	~/* Change Values
ESC Exit	~ Select Item	Enter Select + Sub-Item F10 Previous Values

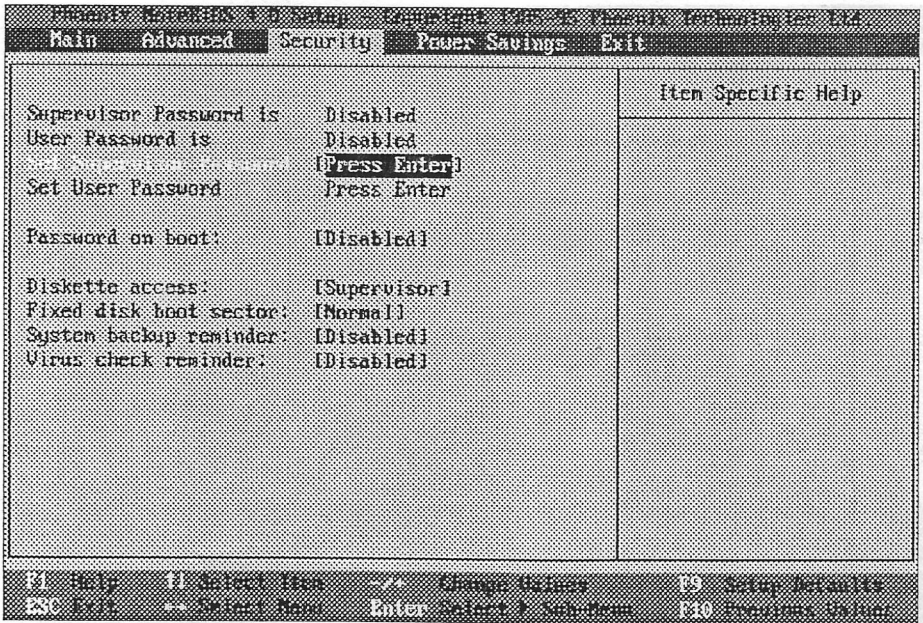
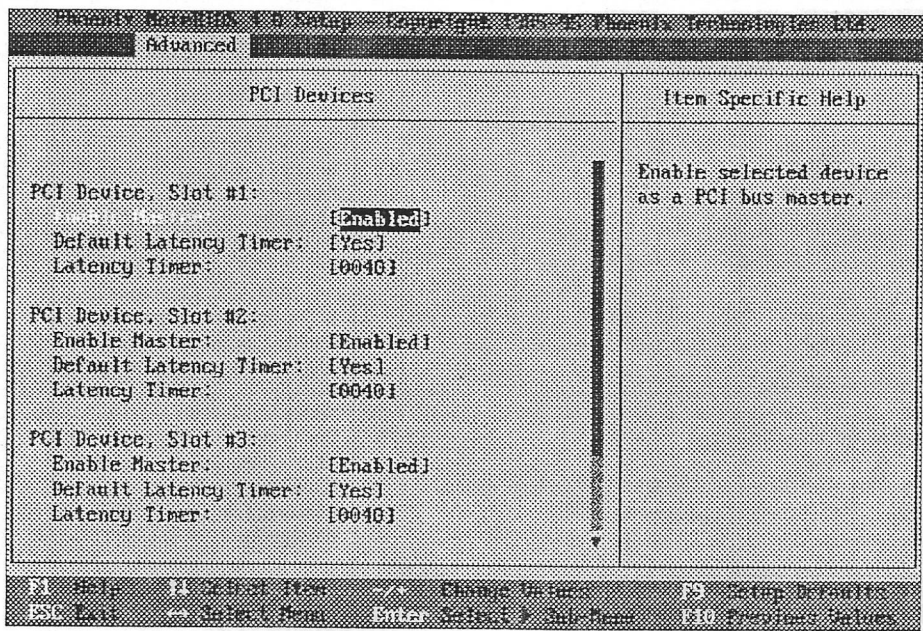
Phoenix BIOS 4.0 Setup - Copyright 1995-96 Phoenix Technologies Ltd.		
Main		
Memory Shadow		Item Specific Help
System shadow	Enabled	Shadows Video BIOS ROMS
Video Shadow:	[Enabled]	
Shadow Memory Regions		
C000 - CFFF:	[Disabled]	
D000 - D7FF:	[Disabled]	
D800 - DFFF:	[Disabled]	
F1 Help	F2 Select Item	~/* Change Values
ESC Exit	~ Select Item	Enter Select + Sub-Item F10 Previous Values



Chapter 9

Phoenix BIOS 4.0 Setup - Copyright 1985-88 Phoenix Technologies Ltd.				
Main	Advanced	Security	Power Savings	Exit
Warning! Setting items on this menu to incorrect values may cause your system to malfunction. Integrated Peripherals: PCI Devices Plug & Play O/S [No] Reset Configuration Data [No] Large Disk Access Mode: [DOS]		Item Specific Help		
F1 Help	F2 Select Item	~> Change Values	F9 Setup Defaults	
ESC Exit	→ Select Menu	Enter Select & Sub-Menu	F10 Previous Values	

Phoenix BIOS 4.0 Setup - Copyright 1985-88 Phoenix Technologies Ltd.			
Advanced			
Integrated Peripherals COM port: [3F8, IRQ 4] COM port: [2F8, IRQ 3] COMB SIR mode: [Disabled] LPT port: [378, IRQ 7] LPT Mode: [Output Only] Select EPP DMA: [DMA 3] Pointing Device (PS/2 mouse): [Enabled] Select sound card base I/O: [220H] Select sound card IRQ: [IRQ 2] Select sound card DMA: [DMA 1] Diskette controller: [Enabled] IDE adapter: [Disabled]		Item Specific Help Set COM port address.	
F1 Help	F2 Select Item	~> Change Values	F9 Setup Defaults
ESC Exit	→ Select Menu	Enter Select & Sub-Menu	F10 Previous Values



Chapter 9

Phoenix BIOS Setup - Copyright 1993-95 Phoenix Technologies Ltd.				
Main	Advanced	Security	Power Savings	Exit
Power Savings: [Custom Settings]			Item Specific Help	
CPU Power Save	[On]	Selects system Power Management mode. 'Longest Battery Life' conserves the greatest amount of system power. 'Highest Performance' provides the greatest system performance, while conserving power whenever possible. Select 'Custom Settings' to modify these settings. 'Power Management Off' disables auto. Power Management.		
Standby Timeout:	[1 Minute]			
Suspend Mode:	[Suspend]			
Auto Suspend Timeout:	[10 Minutes]			
Hard Disk Timeout:	[4 min]			
Video Timeout:	[6 min]			
Modem Ring Resume:	[Off]			
Suspend On Low Battery:	[Off]			
Video Monitoring:	[On]			
F1 Help			F2 Select Item	F4 Change Values
ESC Exit			→ Select Menu	Enter Select Sub-Menu
			F9 Setup Defaults	F10 Previous Values

Phoenix BIOS Setup Copyright 1993-95 Phoenix Technologies Ltd.				
Main	Advanced	Security	Power Savings	Exit
Save Changes & Exit Discard Changes & Exit Get Default Values Load Previous Values Save Changes				Item Specific Help Exit after writing all changed SETUP item values to CMOS.
F1 Help	F2 Select Item	~ Change Values	F9 Setup Defaults	
ESC Exit	→ Select Menu	Enter Execute Command	F10 Previous Values	

POST Errors

A. Recoverable POST Errors

Whenever a recoverable error occurs during POST, *PhoenixBIOS* displays an error message describing the problem.

PhoenixBIOS also issues a beep code (one long tone followed by two short tones) during POST if the video configuration fails (no card installed or faulty) or if an external ROM module does not properly checksum to zero.

An external ROM module (e.g. VGA) can also issue audible errors, usually consisting of one long tone followed by a series of short tones.

B. Terminal POST Errors

There are several POST routines that issue a POST Terminal Error and shut down the system if they fail. Before shutting down the system, the terminal-error handler issues a beep code signifying the test point error, writes the error to port 80h, attempts to initialize the video, and writes the error in the upper left corner of the screen (using both mono and color adapters).

The routine derives the beep code from the test point error as follows:

1. The 8-bit error code is broken down to four 2-bit groups.
2. Each group is made one-based (1 through 4) by adding 1.
3. Short beeps are generated for the number in each group.

Example:

Testpoint 01Ah = 00 01 10 10 = 1-2-3-3 beeps

If the BIOS detects error 2C, 2E, or 30 (base 512k RAM error), it displays an additional word of information reflecting the bit or address line that failed. For example, if "2C 0002" is displayed, address line 1 (represented by bit one) has failed. If "2E 1020" is displayed, then data bits 12 and 5 have failed in the upper 16 bits.

BIOS sends the same information to the port-80 LED display (See below). The check point code is followed by a delay, the high order byte, another delay, and then the low order byte of the error. This

C. Test Points and Beep Codes

At the beginning of each POST routine, the BIOS outputs the test point error code to I/O address 80h. Use this code during trouble shooting to establish at what point the system failed and what routine was being performed.

Some motherboards are equipped with a seven-segment LED display that displays the current value of port 80h. For production boards which do not contain the LED display, you can purchase a card that performs the same function.

If the BIOS detects a terminal error condition, it halts POST after issuing a terminal error beep code (See above) and attempting to display the error code on upper left corner of the screen and on the port 80h LED display. It attempts repeatedly to write the error to the screen. This may cause "hash" on some CGA displays.

If the system hangs before the BIOS can process the error, the value displayed at the port 80h is the last test performed. In this case, the screen does not display the error code.

The following is a list of the checkpoint codes written at the start of each test and the beep codes issued for terminal errors:

Code	Beeps	POST Routine Description
02	10	Verify Real Mode
04	600	Get CPU type
06		Initialize system hardware
08		Initialize chipset registers with initial POST values
09		Set in POST flag
0A		Initialize CPU registers
0C		Initialize cache to initial POST values

0E		Initialize I/O
0F		Initialize the local bus IDE
10		Initialize Power Management
11		Load alternate registers with initial POST valuesnew
12		Jump to UserPatch0
14		Initialize keyboard controller
16	2-2-3	BIOS ROM checksum
18		8254 timer initialization
1A		8237 DMA controller initialization
1C		Reset Programmable Interrupt Controller
20	3-1-1	Test DRAM refresh
22	3-1-3	Test 8742 Keyboard Controller
24		Set ES segment register to 4 GB
28		Autosize DRAM
2A		Clear 512K base RAM
2C	3-4-1	Test 512K base address lines
2E	3-4-3	Test 512K base memory
32		Test CPU bus-clock frequency
34		Test CMOS RAM
35		Initialize other hardware devices.
37		Reinitialize the chipset (MB only)
38		Shadow system BIOS ROM

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39		Reinitialize the cache (MB only)
3A		Autosize cache
3C		Configure advanced chipset registers
3D		Load alternate registers with CMOS valuesnew
40		Set Initial CPU speed new
42		Initialize interrupt vectors
44		Initialize BIOS interrupts
46	2-1-2-3	Check ROM copyright notice
47		Initialize manager for PCI Option ROMs
48		Check video configuration against CMOS
49		Initialize PCI bus and devices
4A		Initialize all video adapters in system
4C		Shadow video BIOS ROM
4E		Display copyright notice
50		Display CPU type and speed
51		Initialize EISA slots
52		Test keyboard
54		Set key click if enabled
56		Enable keyboard
58	2-2-3-1	Test for unexpected interrupts
5A		Display prompt "Press F2 to enter SETUP"

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5C		Test RAM between 512 and 640k
60		Test extended memory
62		Test extended memory address lines
64		Jump to UserPatch1
66		Configure advanced cache registers
68		Enable external and CPU caches
6A		Display external cache size
6C		Display shadow message
6E		Display non-disposable segments
70		Display error messages
72		Check for configuration errors
74		Test real-time clock
76		Check for keyboard errors
7C		Set up hardware interrupt vectors
7E		Test coprocessor if present
80		Disable onboard I/O ports.
82		Detect and install external RS232 ports
84		Detect and install external parallel ports
86		Re-initialize onboard I/O ports.
88		Initialize BIOS Data Area
8A		Initialize Extended BIOS Data Area
8C		Initialize floppy controller
90		Initialize hard-disk drives

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91		Local-bus IDE timing
92		Jump to UserPatch2
93		Build MPTABLE for multi-processor boards
94		Disable A20 address line
96		Clear huge ES segment register
98		Search for option ROMs
9A		Shadow option ROMs
9C		Set up Power Management
9E		Enable hardware interrupts
A0		Set time of day
A2		Check key lock
A4		Initialize typematic rate
A8		Erase F2 prompt
AA		Scan for F2 key stroke
AC		Enter SETUP
AE		Clear in-POST flag
B0		Check for errors
B2		POST done - prepare to boot operating system
B4		One beep
B6		Check password (optional)
B8		Clear global descriptor table
BC		Clear parity checkers

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BE		Clear screen (optional)
BF		Check virus and backup reminders
C0		Try to boot with INT 19
DO		Interrupt handler error
D2		Unknown interrupt error
D4		Pending interrupt error
D6		Initialize option ROM error
D8		Shutdown error
DA		Extended Block Move
DC		Shutdown 10 error
		The following are for boot block in Flash ROM
E2		Initialize the chipset
E3		Initialize refresh counter
E4		Check for Forced Flash
E5		Check HW status of ROM
E6		BIOS ROM is OK
E7		Do a complete RAM test
E8		Do OEM initialization
E9		Initialize interrupt controller
EA		Read in the bootstrap code
EB		Initialize all vectors
EC		Boot the Flash program
ED		Initialize the boot device
EE		Boot code was read OK

D. PhoenixBIOS Messages

nnnn Cache SRAM Passed
Diskette drive A error
Diskette drive B error
Entering SETUP...
Extended RAM Failed at offset: *nnnn* *
Extended RAM Passed
Failing Bits: *nnnn* *
Fixed Disk 0 Failure
Fixed Disk 1 Failure
Fixed Disk Controller Failure *
Incorrect Drive A type - run SETUP
Incorrect Drive B type - run SETUP
Invalid NVRAM media type *
Keyboard controller error *
Keyboard error
Keyboard locked - Unlocked key switch
Monitor type does not match CMOS - Run SETUP
Operating system not found
Parity Check 1 *nnnn* *
Parity Check 2 *nnnn* *
Press <F1> to resume, <F2> to Setup
Press <F2> to enter SETUP
Real time clock error *
Shadow Ram Failed at offset: *nnnn* *
nnnn Shadow RAM Passed
System battery is dead - Replace and run SETUP
System BIOS shadowed
System cache error - Cache disabled *
System CMOS checksum bad - run SETUP
System RAM Failed at offset: *nnnn* *
nnnn System RAM Passed
System timer error *
UMB upper limit segment address: *nnnn*
Video BIOS shadowed

* If your system displays this message, write down the message and contact your dealer.
If your system fails after you made changes in the Setup menus, you may be able to correct the problem by entering Setup and restoring the original values.
The following is an explanation of each of the messages listed above.

nnnn Cache SRAM Passed Where *nnnn* is the amount of system cache in kilobytes successfully tested.

Chapter 10

Diskette drive A error or

Diskette drive B error Drive A: or B: is present but fails the BIOS POST diskette test. Check to see that the drive is defined with proper diskette type in Setup and that the diskette drive is attached correctly.

Entering SETUP... Starting Setup program

Extended RAM Failed at offset: *nnnn* Extended memory not working or not configured properly at offset *nnnn*.

nnnn Extended RAM Passed Where *nnnn* is the amount of RAM in kilobytes successfully tested.

Failing Bits: *nnnn* The hex number *nnnn* is a map of the bits at the RAM address (in System, Extended, or Shadow memory) which failed the memory test. Each 1 (one) in the map indicates a failed bit.

Fixed Disk 0 Failure or

Fixed Disk 1 Failure or

Fixed Disk Controller Failure Fixed disk is not working or not configured properly. Check to see if fixed disk is attached properly. Run Setup be sure the fixed-disk type is correctly identified.

Incorrect Drive A type - run SETUP Type of floppy drive A: not correctly identified in Setup.

Incorrect Drive B type - run SETUP Type of floppy drive B: not correctly identified in Setup.

Invalid NVRAM media type Problem with NVRAM (CMOS) access.

Keyboard controller error The keyboard controller failed test. You may have to replace keyboard or controller.

Keyboard error Keyboard not working.

Keyboard error *nn* BIOS discovered a stuck key and displays the scan code *nn* for the stuck key.

Keyboard locked - Unlocked key switch Unlocked the system to proceed.

Monitor type does not match CMOS - Run SETUP Monitor type not correctly identified in Setup.

Operating system not found Operating system cannot be located on either drive A: or drive C:.
Enter Setup and see if fixed disk and drive A: are properly identified.

Parity Check 1 Parity error found in the system bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????

Parity Check 2 Parity error found in the I/O bus. BIOS attempts to locate the address and display it on the screen. If it cannot locate the address, it displays ????

Press <F1> to resume, <F2> to Setup Displayed after any recoverable error messages. Press <F1> to start the boot process or <F2> to enter Setup and change any settings.

Chapter 10

Press <F2> to enter SETUP Optional message displayed during POST. Can be turned off in Setup.

Previous boot incomplete - Default configuration used Previous POST did not complete successfully. POST loads default values and offers to run Setup. If the failure was caused by incorrect values and they are not corrected, the next boot will likely fail. On systems with control of wait states, improper Setup settings can also terminate POST and cause this error on the next boot. Run Setup and verify that wait-state configuration is correct. This error is cleared the next time the system is booted.

Real time clock error Real-time clock fails BIOS test. May require board repair.

Shadow Ram Failed at offset: nnnn Shadow RAM failed at offset *nnnn* of the 64k block at which the error was detected.

nnnn Shadow RAM Passed Where *nnnn* is the amount of shadow RAM in kilobytes successfully tested.

System battery is dead - Replace and run SETUP The CMOS clock battery indicator shows the battery is dead. Replace the battery and run Setup to reconfigure the system.

System BIOS shadowed System BIOS copied to shadow RAM.

System cache error - Cache disabled RAM cache failed the BIOS test. BIOS disabled the cache.

System CMOS checksum bad -run SETUP System CMOS has been corrupted or modified incorrectly, perhaps by an application program that changes data stored in CMOS. Run Setup and reconfigure the system either by getting the Default Values and/or making your own selections.

System RAM Failed at offset: nnnn System RAM failed at offset *nnnn* of in the 64k block at which the error was detected.

nnnn System RAM Passed Where *nnnn* is the amount of system RAM in kilobytes successfully tested.

System timer error The timer test failed. Requires repair of system board.

UMB upper limit segment address: nnnn Displays the address *nnnn* of the upper limit of Upper Memory Blocks, indicating released segments of the BIOS which may be reclaimed by a virtual memory manager.

Video BIOS shadowed Video BIOS successfully copied to shadow RAM.

133	ON	ON	OFF	ON	Vcc	ON	OFF	OFF
150	OFF	OFF	ON	OFF		ON	OFF	OFF
166	ON	ON	ON	ON				
200	ON	ON	ON	OFF				



SW1 	SW2 	SW3 	Intel P54C 75MHz 3.3V
SW1 	SW2 	SW3 	Intel P54LM 75MHz 2.9V
SW1 	SW2 	SW3 	Intel P54LM 90MHz 2.9V
SW1 	SW2 	SW3 	Intel P54LM 100MHz 2.9V

Approved by	Checked by	Designed by
ALPHA-TOP CORP.		
6F, NO. 80, SEC 2, ANN-HO RD.,		
TAIPEI, TAIWAN, R.O.C.		
Title	GREEN753 M/B CPU SELECTION SWITCH SETTING	
Size	Document Number	REV
B	G753H0101	00
Date	December 13, 1995	Sheet 1 of 1

PCB:

1. KK101002
2. KK101003
3. KK101004

NOTE:

1. = Set to UP (ON) position.
2. = Set to DOWN (OFF) position.

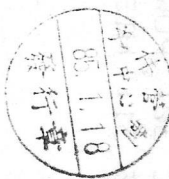


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14	12	13

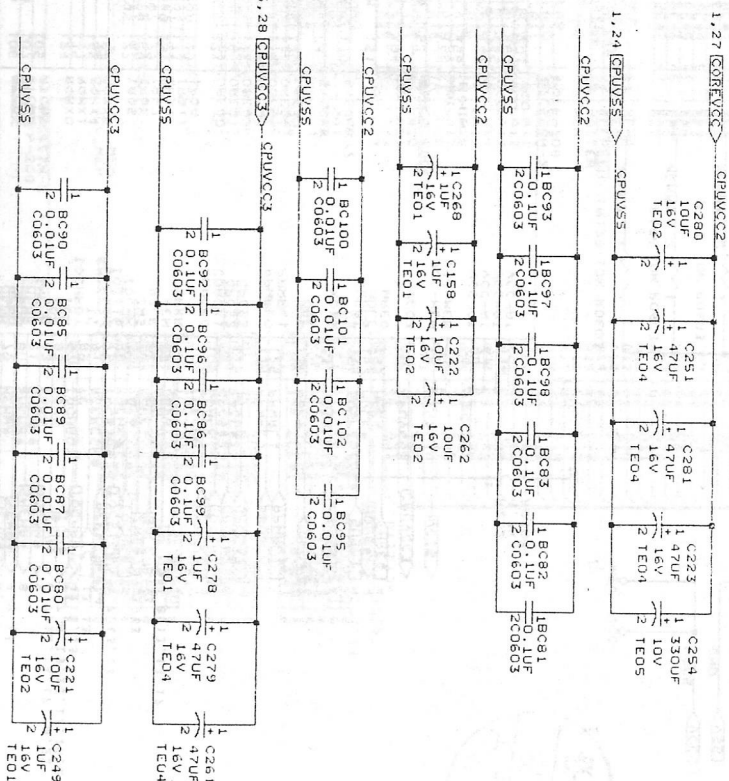
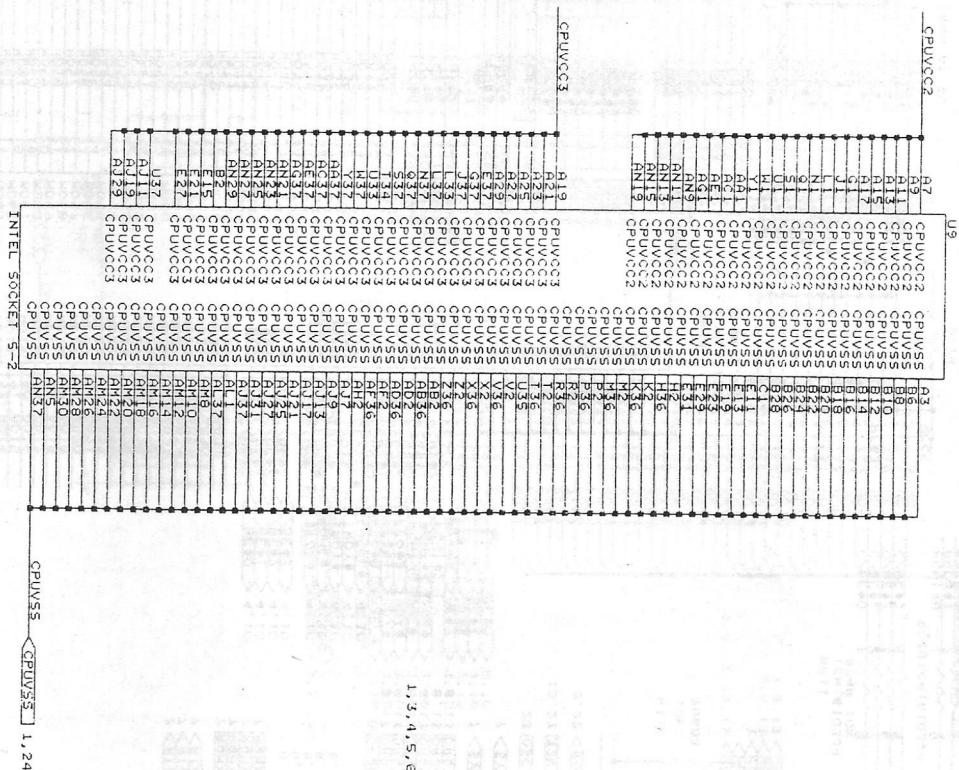
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- PAGE 2 : CPU-1 (SPGA)
- PAGE 3 : CPU-2 (SPGA)
- PAGE 4 : OPTI 82C558N
- PAGE 5 : OPTI 82C557
- PAGE 6 : 32K X 32 SRAM
- PAGE 7 : OPTI 82C556 , GPIO PORT
- PAGE 8 : OPTI 82C602A , HDD , CDROM CONN.
- PAGE 9 : DAMPING RESISTOR
- PAGE 10: DRAM , DIM SOCKET
- PAGE 11: VGA CIRCUIT 7543
- PAGE 12: VGA DISPLAY MEMORY
- PAGE 13: LCDI INTERFACE , EXTERNAL CRT PORT
- PAGE 14: LCDI INTERFACE CONNECTOR , SOUND JACK
- PAGE 15: SUPER I/O SMC37C665IR , SIR CONN. , FDD CONN.
- PAGE 16: SERIAL , PARALLEL PORT INTERFACE , TV PORT
- PAGE 17: PCMCIA MODULE CONN. VDD , LCMVCC
- PAGE 18: SOUND ESS1788
- PAGE 19: SOUND AMP. GAME PORT
- PAGE 20: SYSTEM BIOS
- PAGE 21: SPK. AMP.
- PAGE 22: MICRO P. M37450M2
- PAGE 23: K.B. CONTROLLER M38802M2 , EXT. K.B. CONN.
- PAGE 24: CLOCK GENERATOR
- PAGE 25: SW. BYPASS , BULK CAPS
- PAGE 26: DOCKING CONN.
- PAGE 27: POWER ON BOARD-1
- PAGE 28: POWER ON BOARD-2
- PAGE 29: POWER ON BOARD-3
- PAGE 30: POWER ON BOARD-4
- PAGE 31: HISTRY



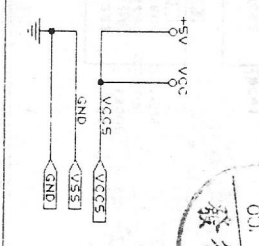
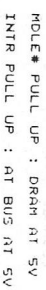
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Title		
ALPHA TOP		
COVER PAGE		
Size	Document Number	REV
B	G753H0039	04
Date	January 9, 1996	Sheet 1 of 31

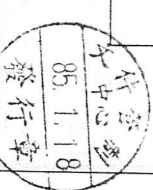
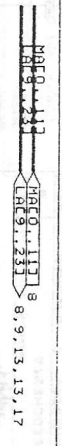


CPUVCC2 : 2.9V
CPUVCC3 : 3.3V



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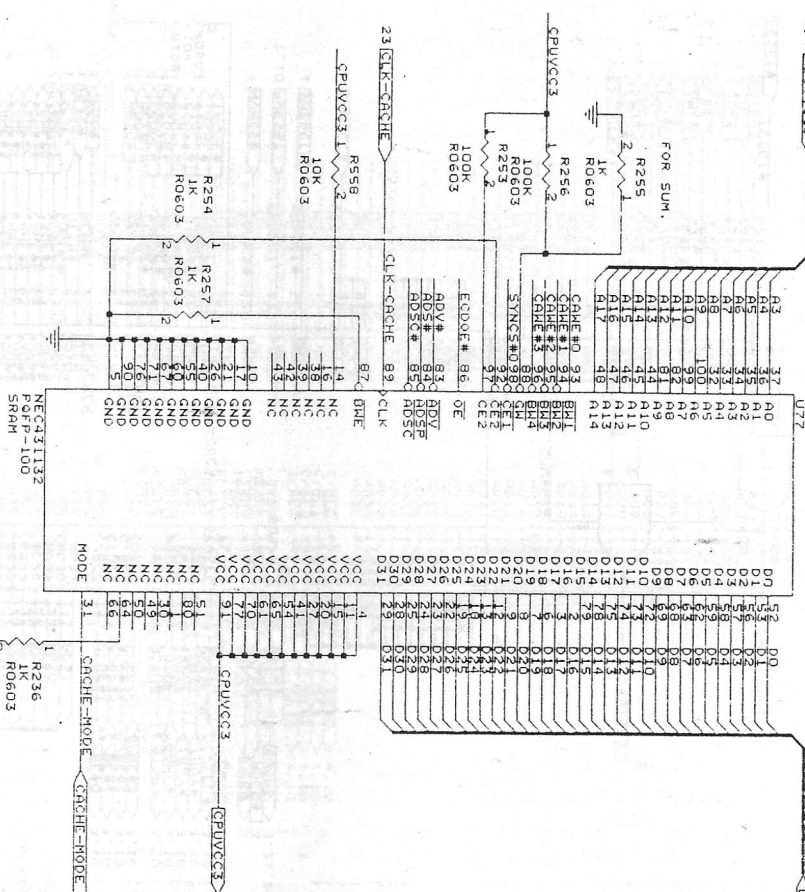




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TAG#0..27 (TAG#0..27)
TAGOE# (TAGOE#)
TAGOC# (TAGOC#)

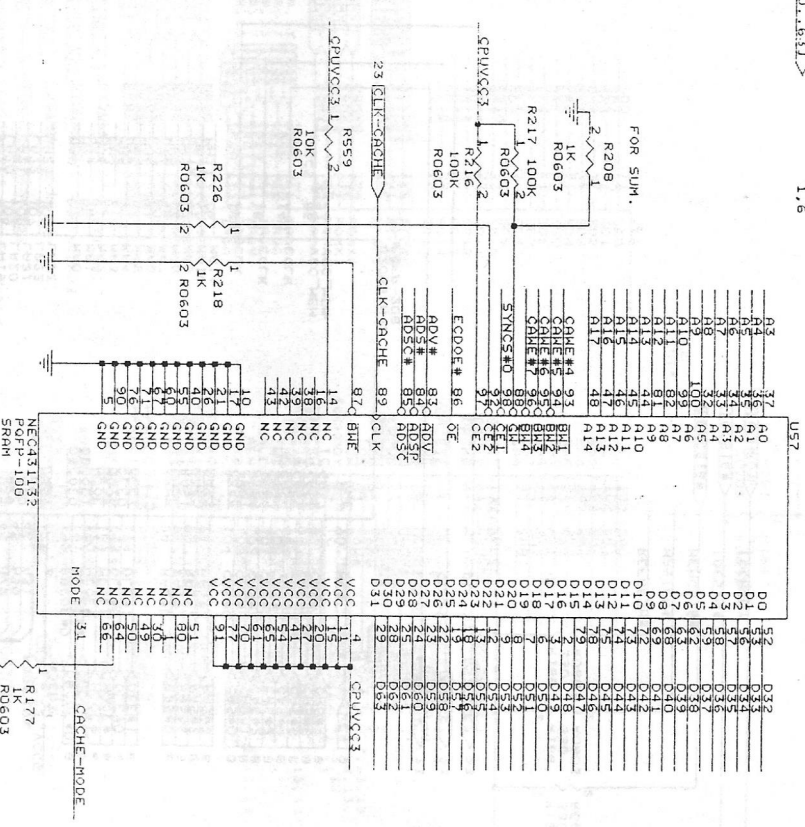
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FOR SUM.

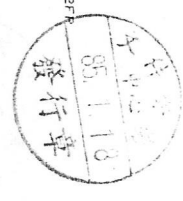


1.6

FOR SUM.



SYNCS#0 4
ECCOE# 4
ADV# 4
RO5# 4
RO3C# 1.4



R189 1K
R0603 2

R196 1K
R0603 2

DT71356
VCC 28
VCC5

R173 10K
R0603

R173 10K
R0603

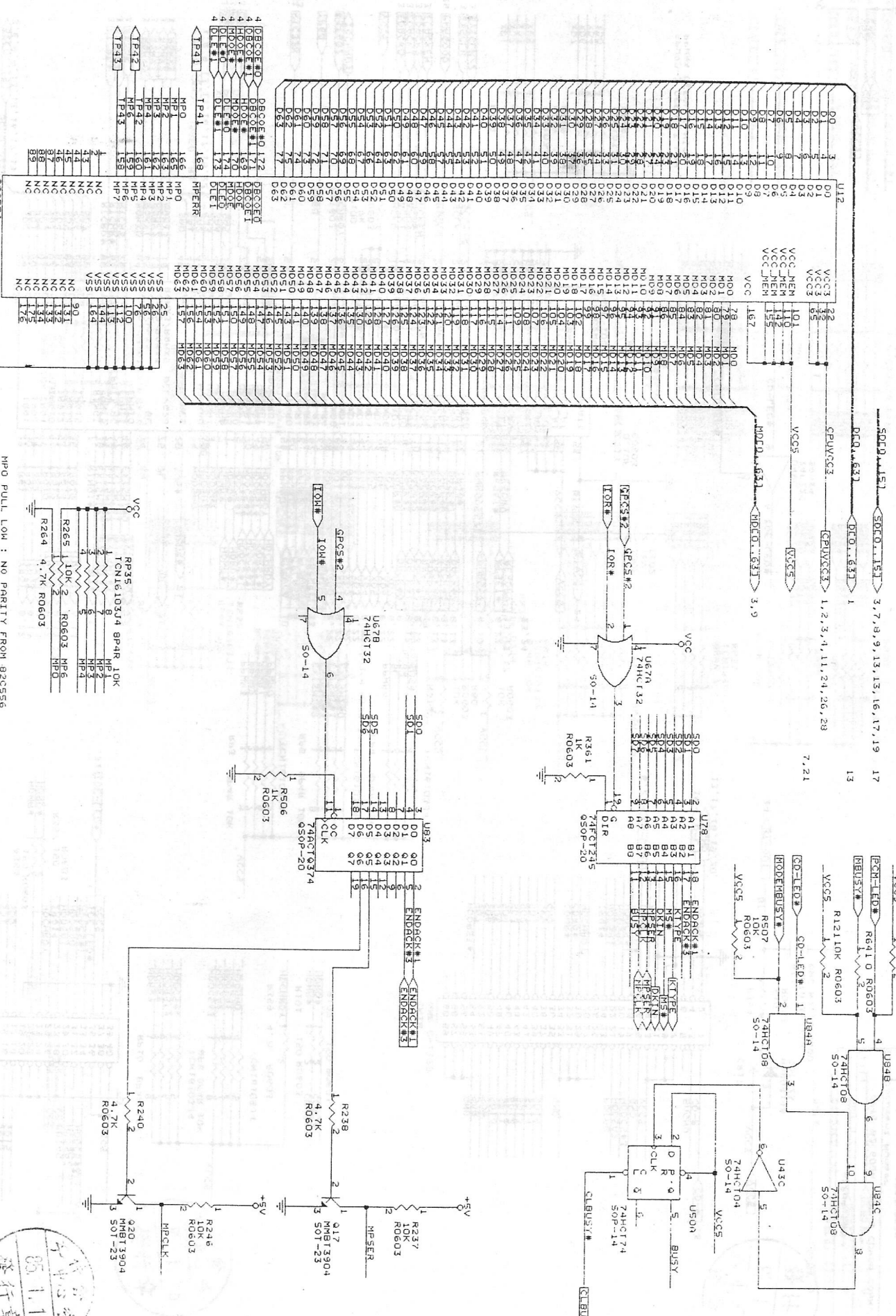
VCC5
GND
VSS

BC130 2 0.1uF
CO603

BC131 2 0.1uF
CO603

BC132 2 0.1uF
CO603

ALPHA TOP			
Title	Size	Document Number	REV
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MP0 PULL LOW : NO PARITY FROM 82C556
MP1 PULL UP : INT PU/PD IF BUS IS IDLE
MP2 PULL UP : INT PU/PD DURING SUSPEND
MP3 PULL UP : DRAM AT 5V
MP4 PULL UP : NORMAL MODE

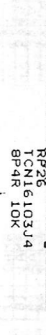
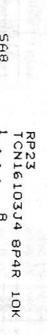
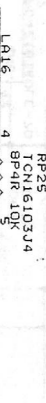
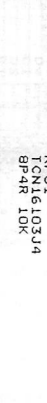
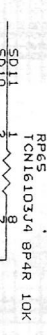
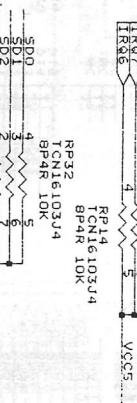
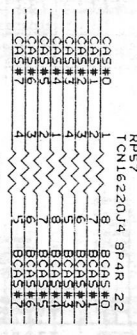
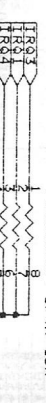
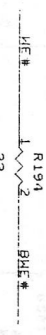
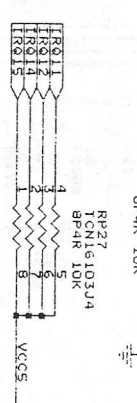
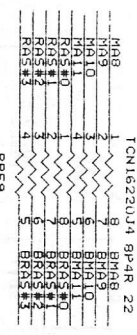
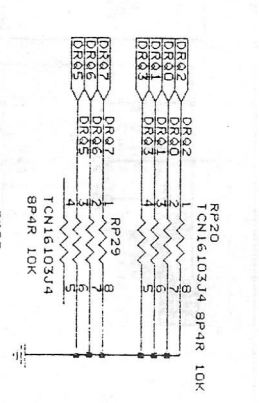
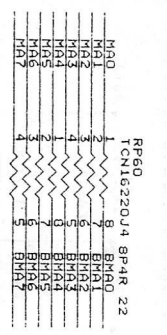
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Size: Document Number: 675340039
REV: 04
Date: January 97, 1996 Sheet 7 of 31



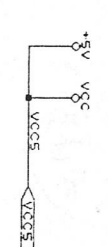
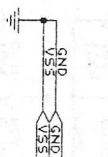
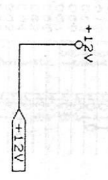


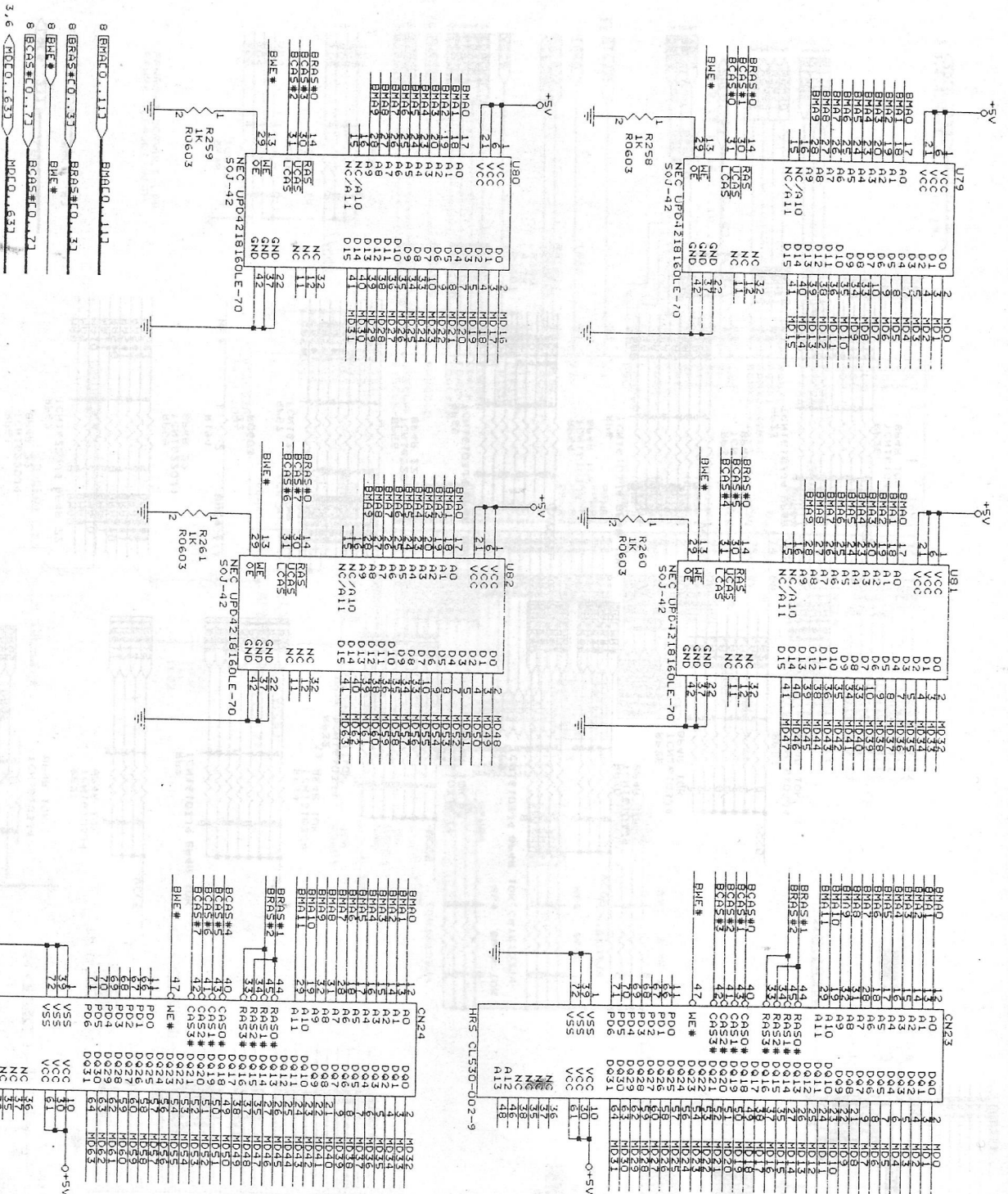
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4 CASFCO..21 CASFCO..21
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4 HE# HE#
4 SDCO..151 SDCO..151

LAFC9..231 LAFC9..231
SACFO..81 SACFO..81

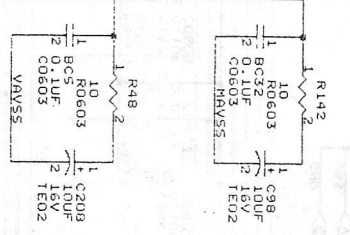
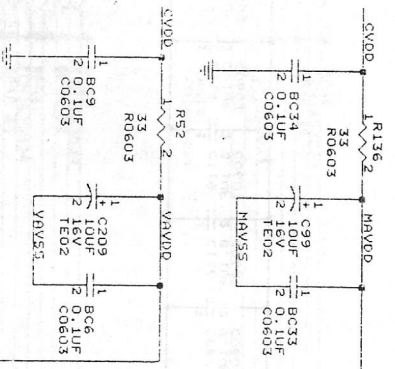
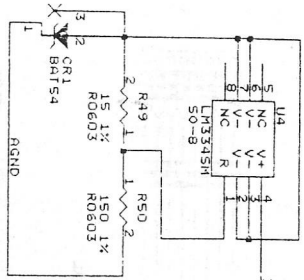


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BHALCO..112 BHALCO..112 9
BRAS#CO..31 BRAS#CO..31 9
BME# BME# 9

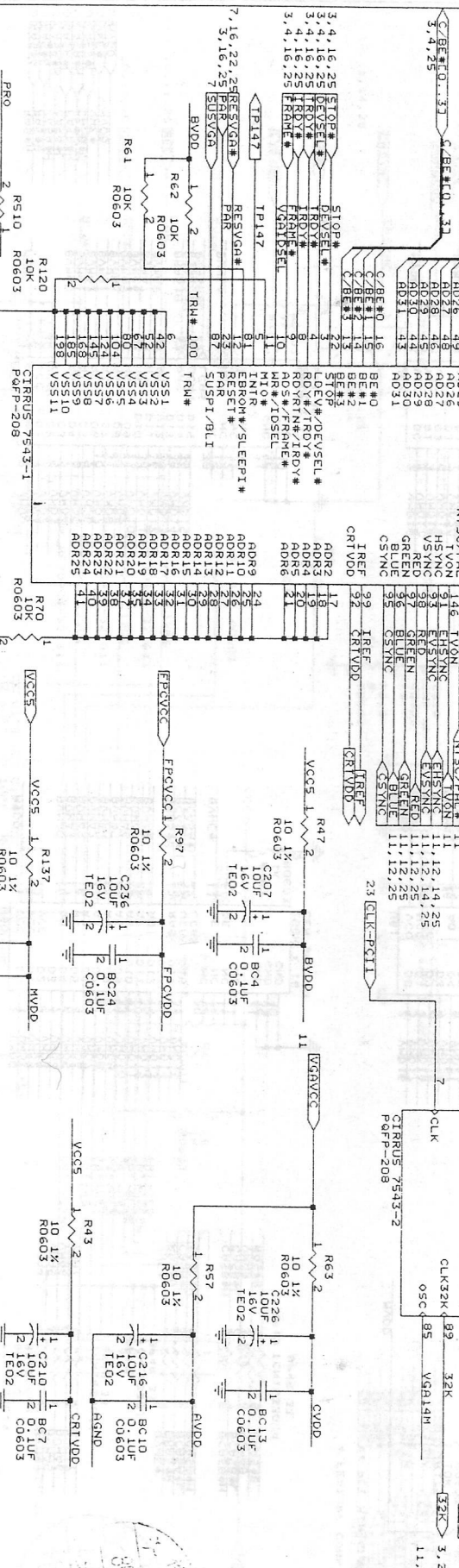


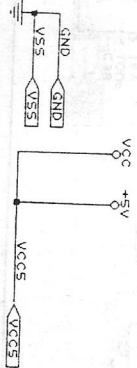
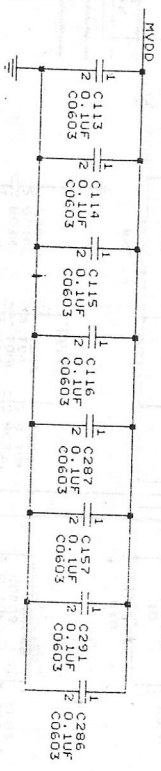
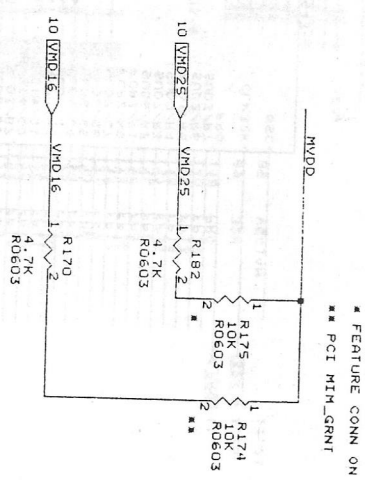
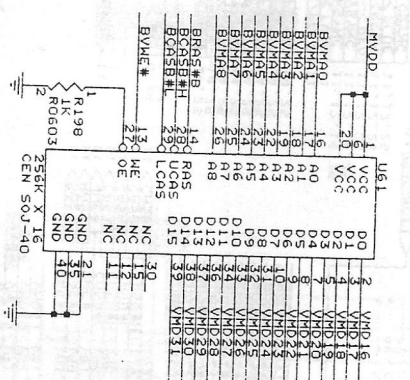
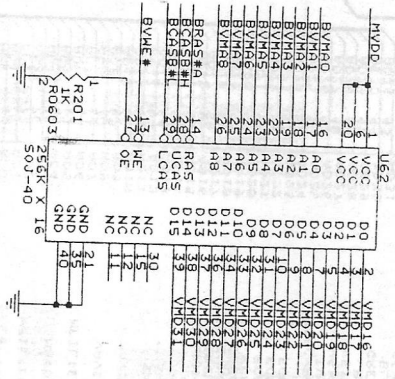
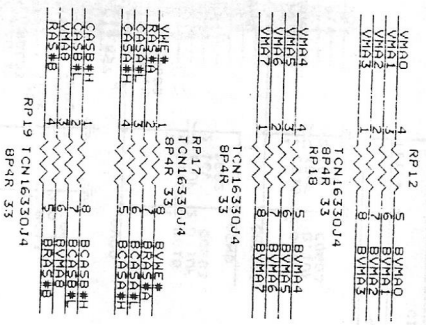
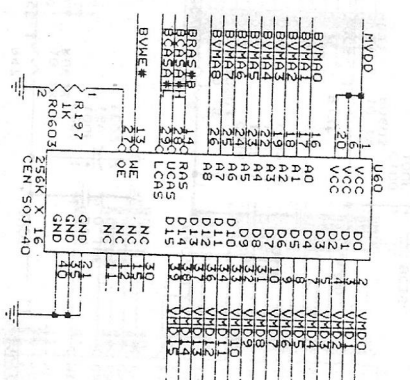
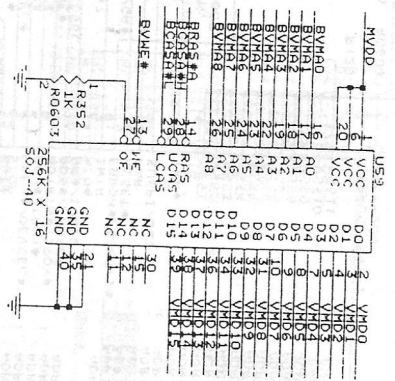
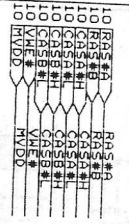


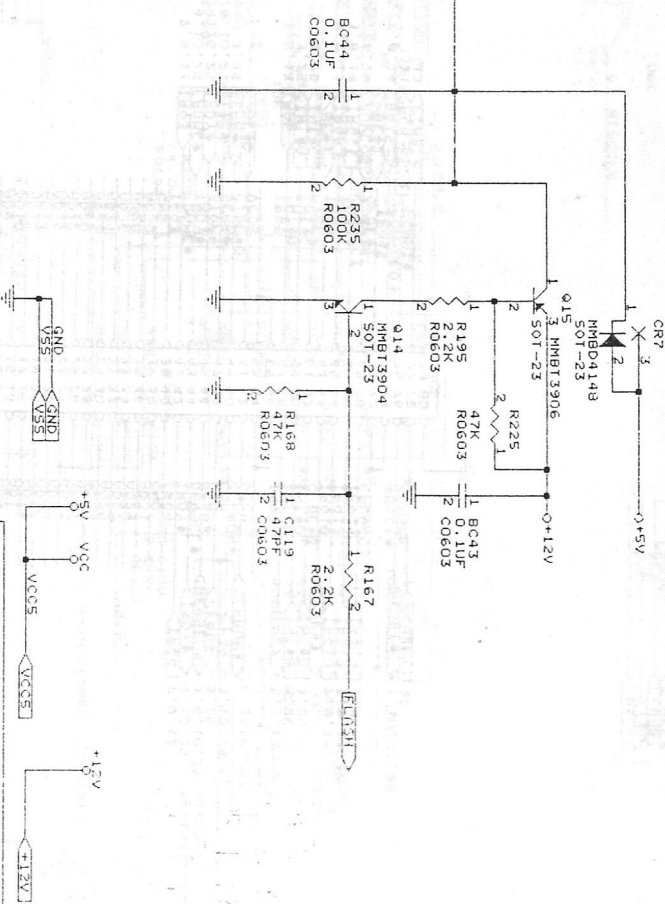
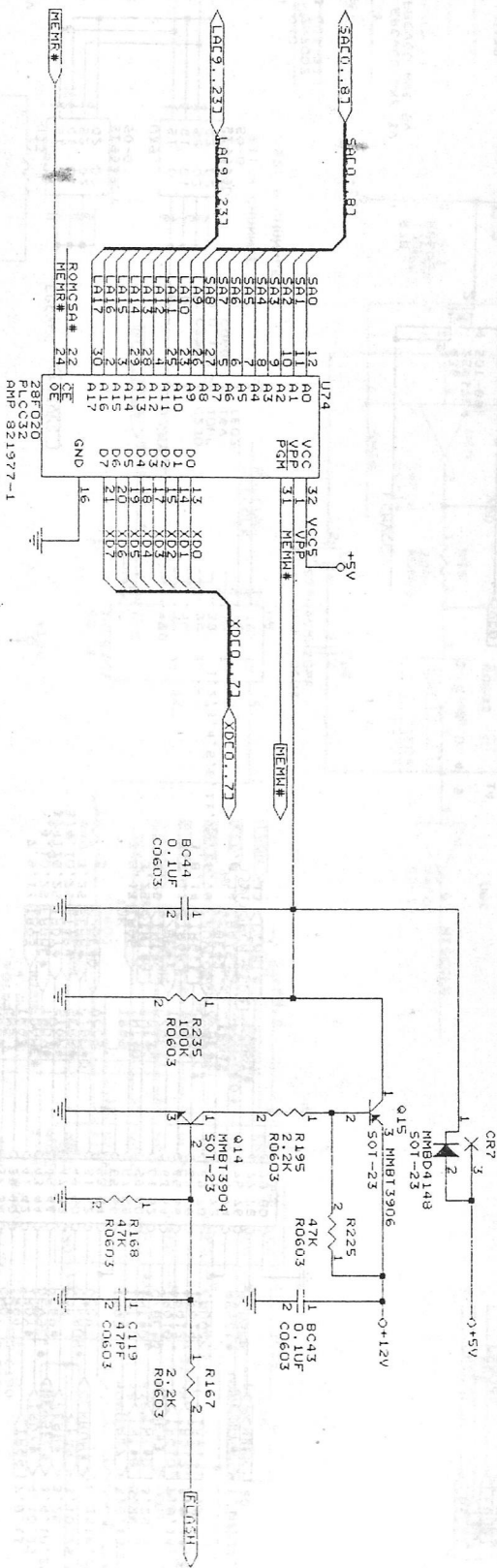
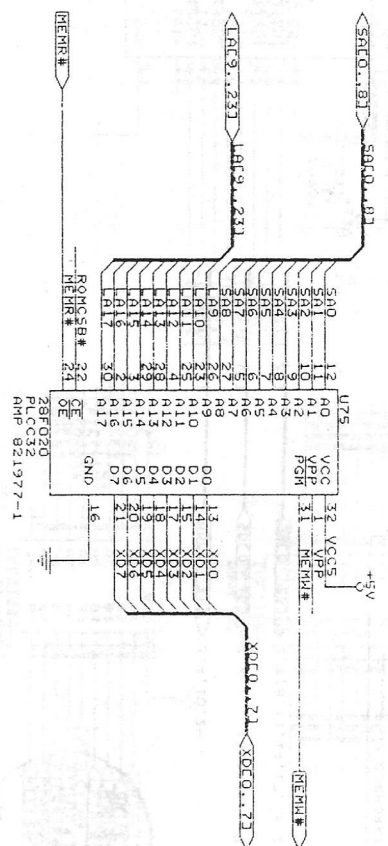
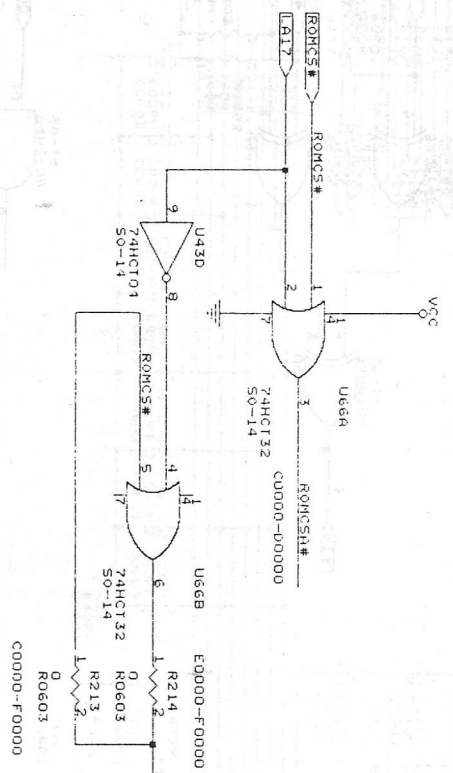
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 WPCD-231 WPCD-311 11



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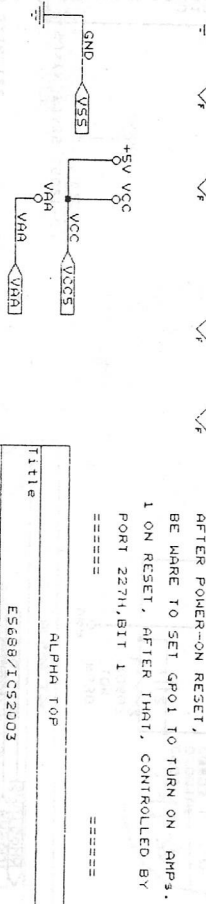
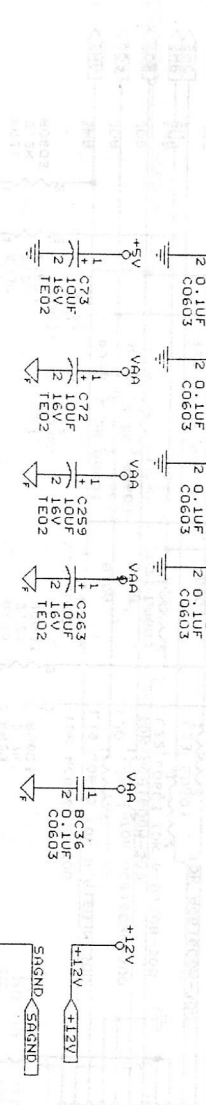
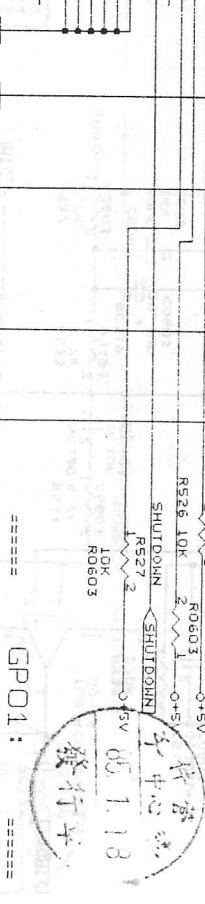
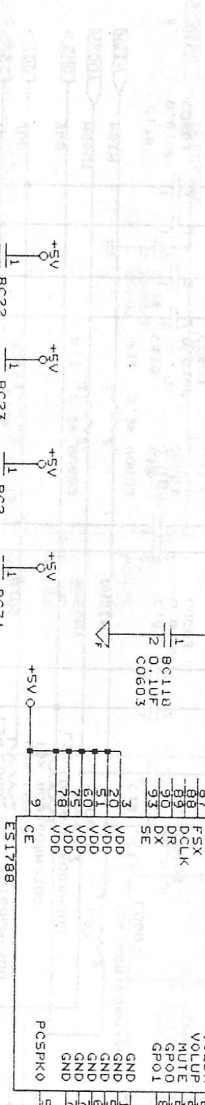
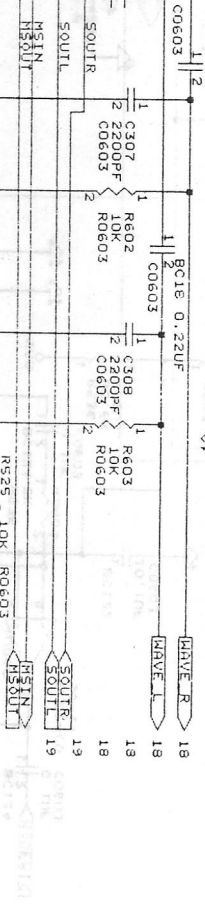
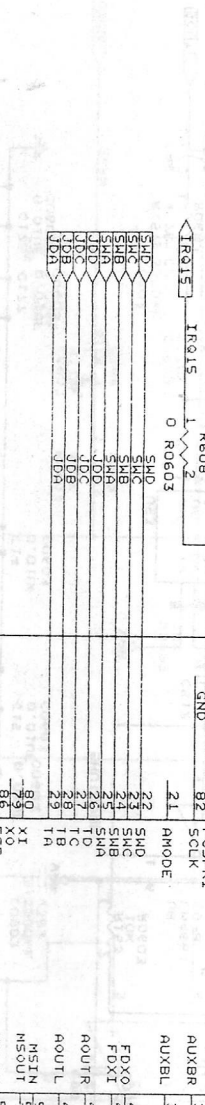
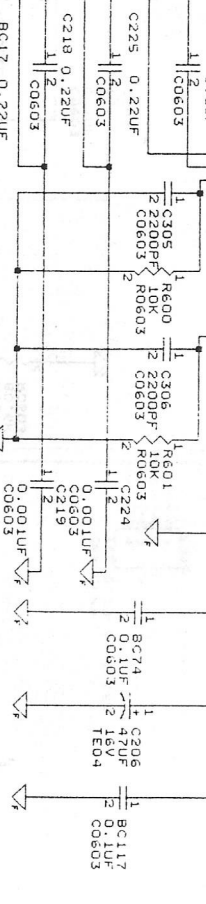
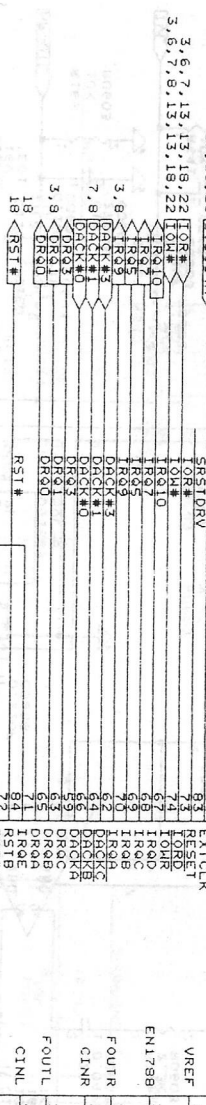
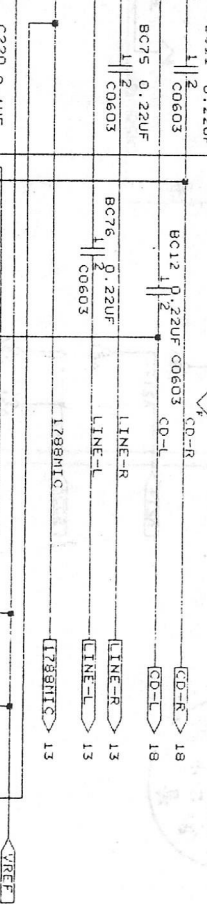
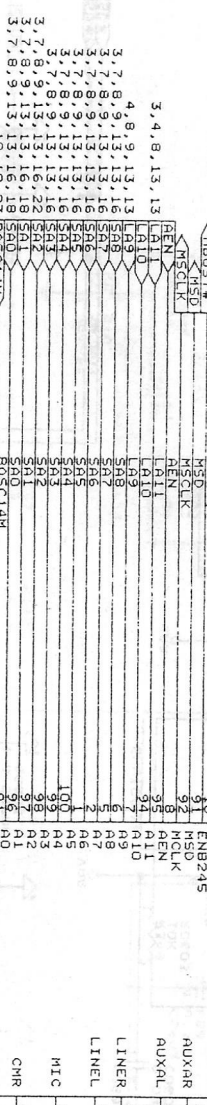
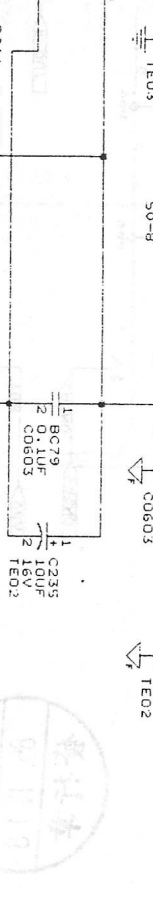
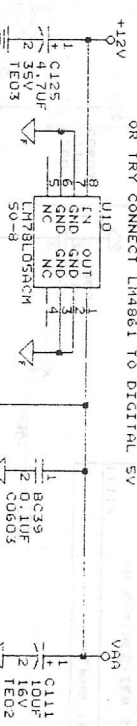


7, 13, 13 RESDRV

U480
74F125
50-14

NOTE:
7405 CURRENT LIMIT = 100mA
MAXIMUM VOLTAGE RESOLUTION
TRY THE OTHER VOLTAGE RESOLUTION
WITH CURRENT LIMIT = 1A
OR TRY CONNECT LM4961 TO DIGITAL 5V

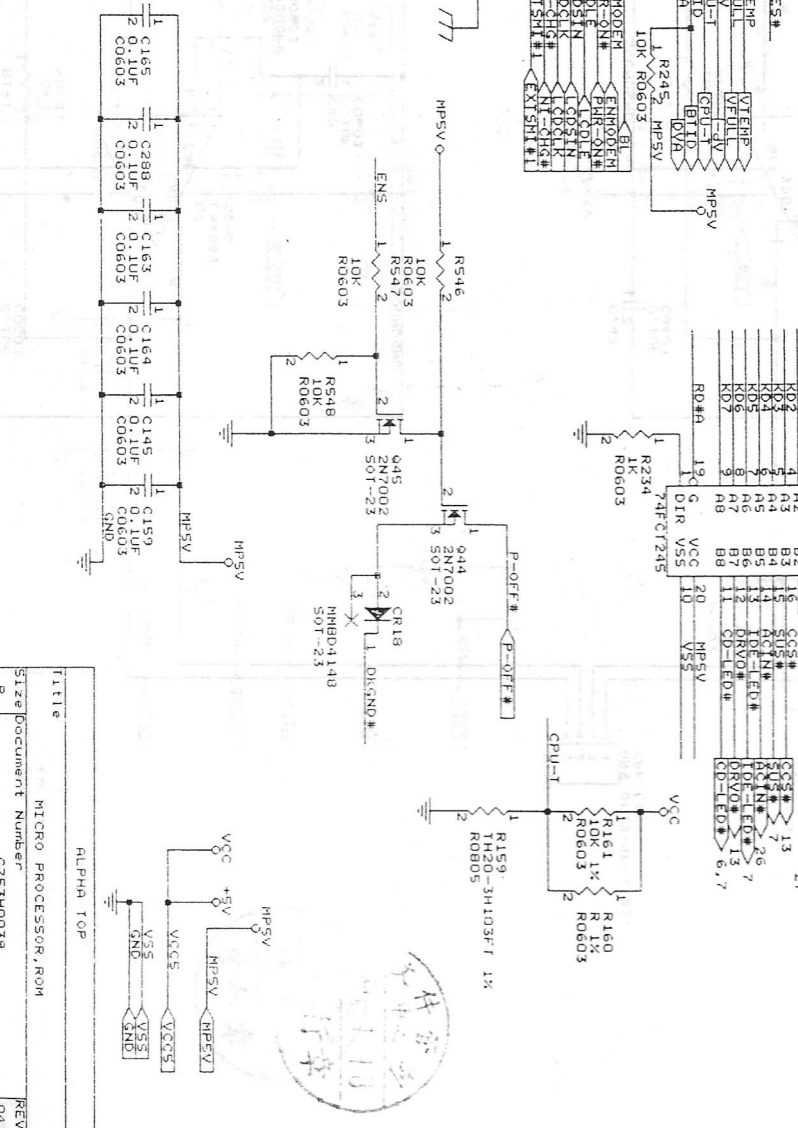
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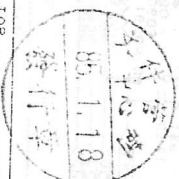
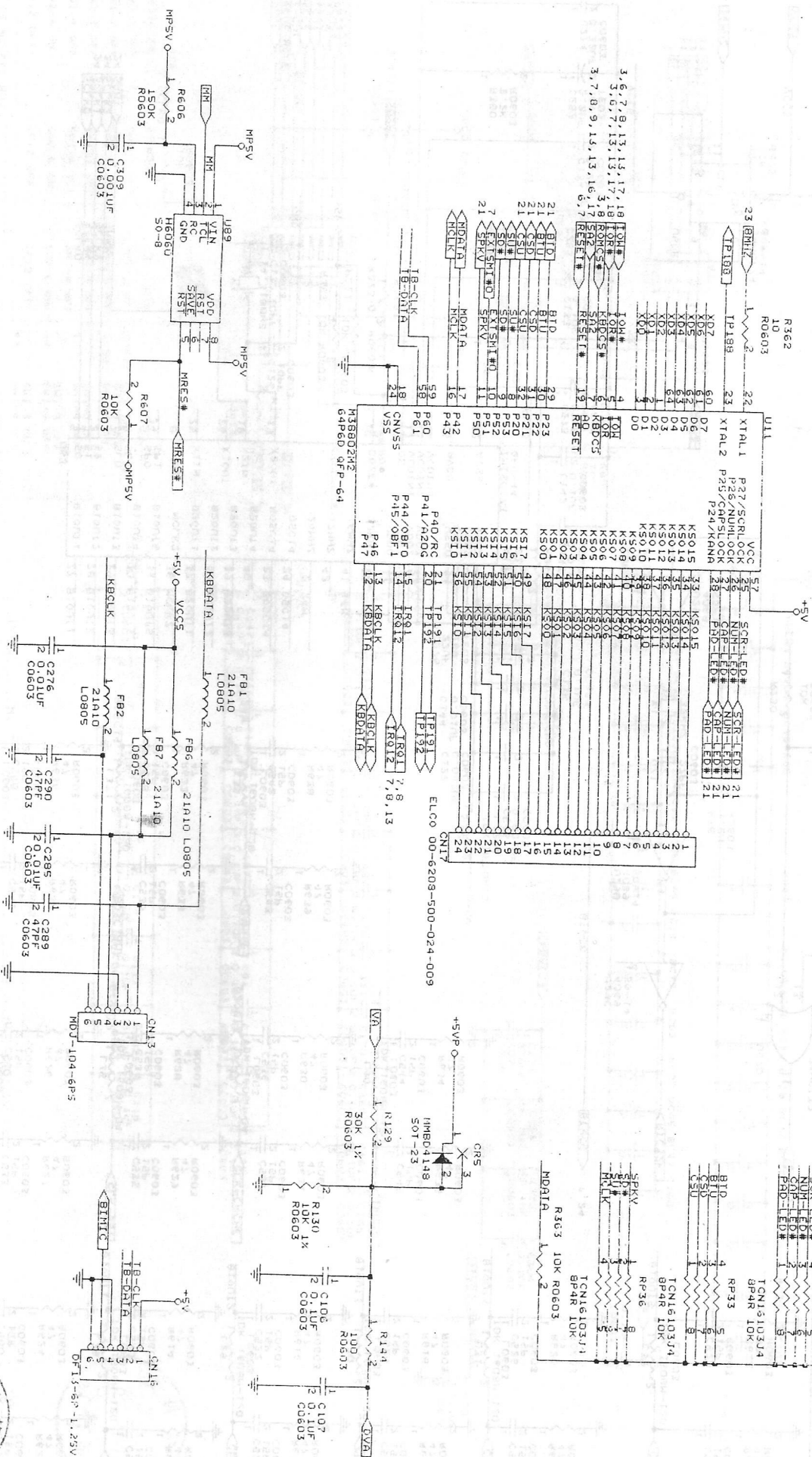


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Size	Document Number
B	7534003
Date:	January 9, 1998 Sheet 19 of 31

GP01:
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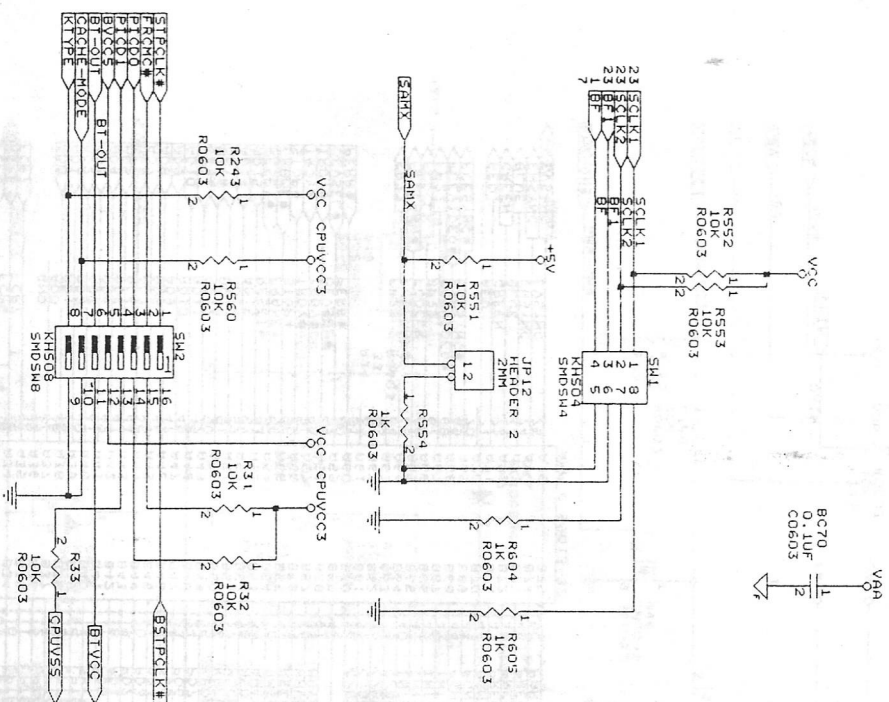




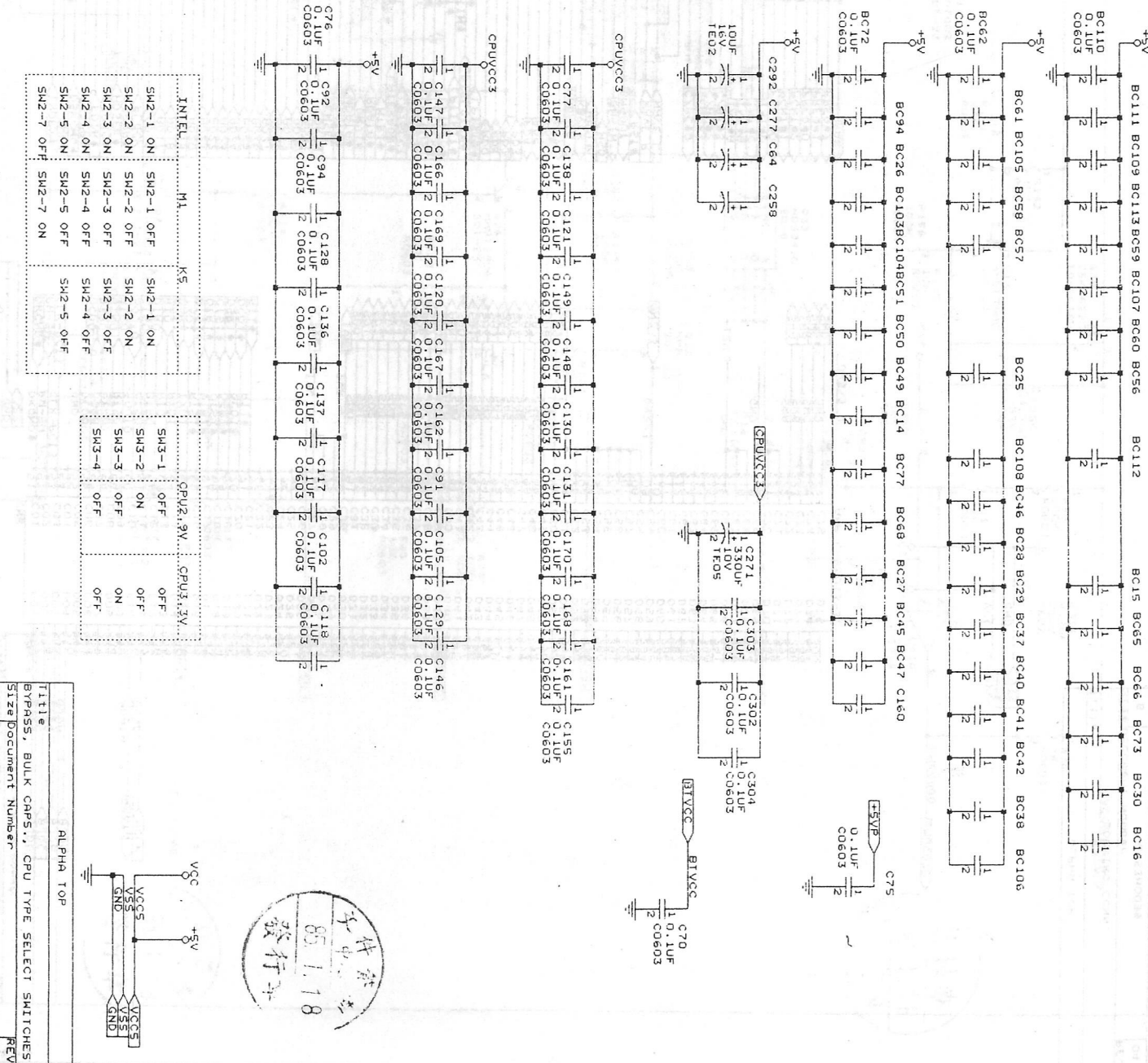


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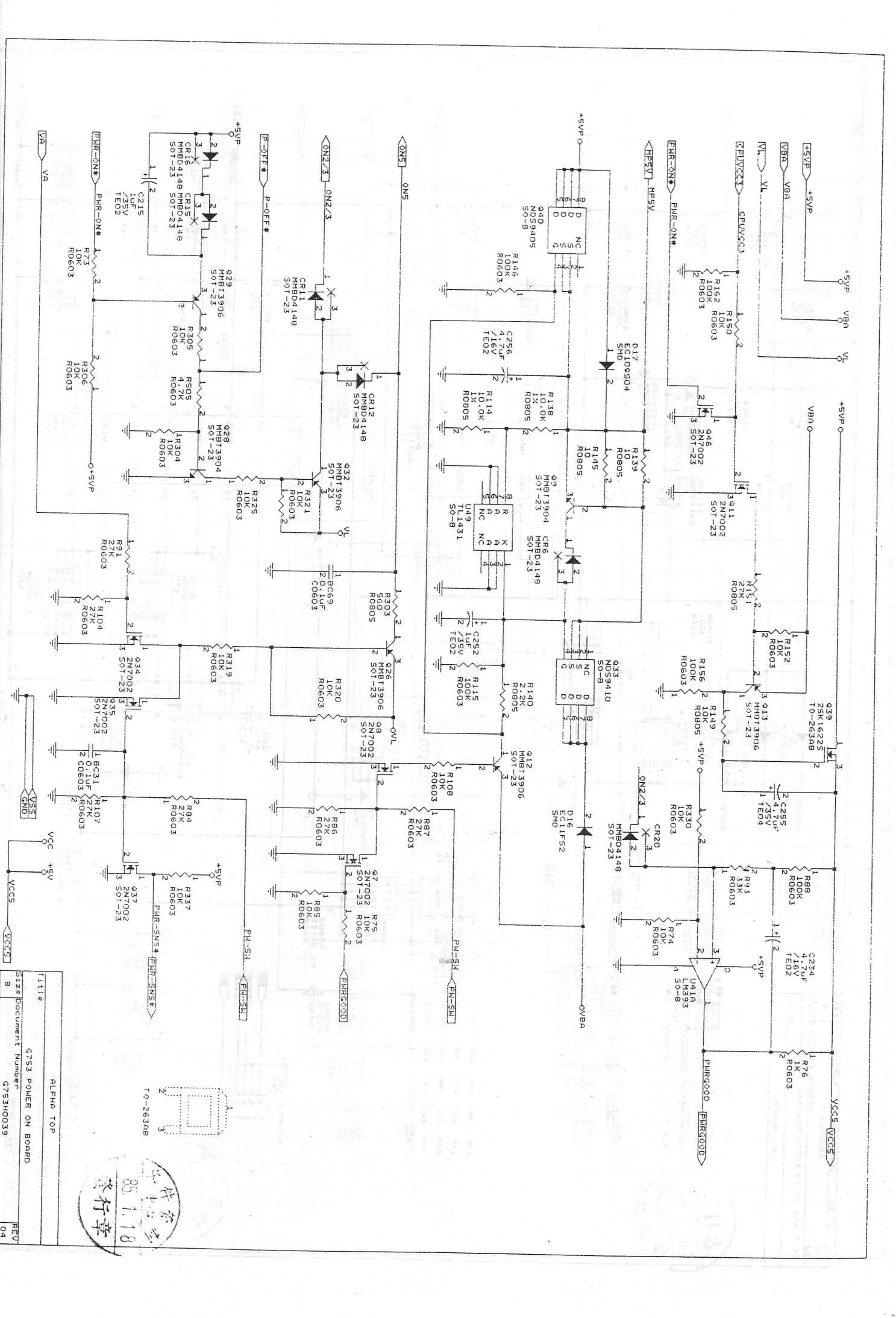
BYPASS AND TANTALUM CAPACITORS



SYN. P.Q.I. BUS			
PS4C-75	PS4C-80	PS4C-100	PS4C-100
SM1-1 OFF	SM1-1 OFF	SM1-1 ON	SM1-1 ON
SM1-2 OFF	SM1-2 ON	SM1-2 ON	SM1-2 ON
SM1-3 OFF	SM1-3 OFF	SM1-3 OFF	SM1-3 OFF
SM1-4 OFF	SM1-4 OFF	SM1-4 OFF	SM1-4 OFF
SM2-6 ON	SM2-6 ON	SM2-6 ON	SM2-6 ON
JP12 OFF	JP12 OFF	JP12 OFF	JP12 OFF
ASYN. P.Q.I. BUS			
PS4C-75	PS4C-80	PS4C-100	PS4C-100
SM1-1 OFF	SM1-1 OFF	SM1-1 ON	SM1-1 ON
SM1-2 OFF	SM1-2 ON	SM1-2 ON	SM1-2 ON
SM1-3 OFF	SM1-3 OFF	SM1-3 OFF	SM1-3 OFF
SM1-4 OFF	SM1-4 OFF	SM1-4 OFF	SM1-4 OFF
SM2-6 ON	SM2-6 ON	SM2-6 ON	SM2-6 ON
JP12 OFF	JP12 OFF	JP12 OFF	JP12 OFF



85.1.18
發行



ALPHA TOP

7805 POWER ON BOARD

Size Document Number 67510039

REV 04

Date: January 31, 1996/Sheet 27 of 31

85.1.18

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10/14/95 PCB P/N KK101002

1. TL074 FOR MIC AMP. SHEET 20

2. OPA FOR ECP MODE, CHANGE 74HC174 TO 74ACT0374. SHEET 7

3. MODEN INTERFACE SHUNT WITH MPFG CONN. SHEET 14

11/16/95 PCB P/N KK101003

4. LCD POWER OFF SEQUENCE. SHEET 27

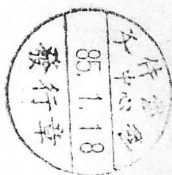
5. ADD PULL LOW R R C FOR CD, AUBB TO REDUCE NOICE. SHEET 19

6. ADD H0606 FOR MATCH D07. SHEET 23

1/9/96 PCB P/N KK101004

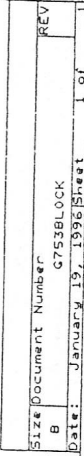
7. ADD FCC SOLUTION

8. INCREASE FAX/MODEN VOICE GAIN

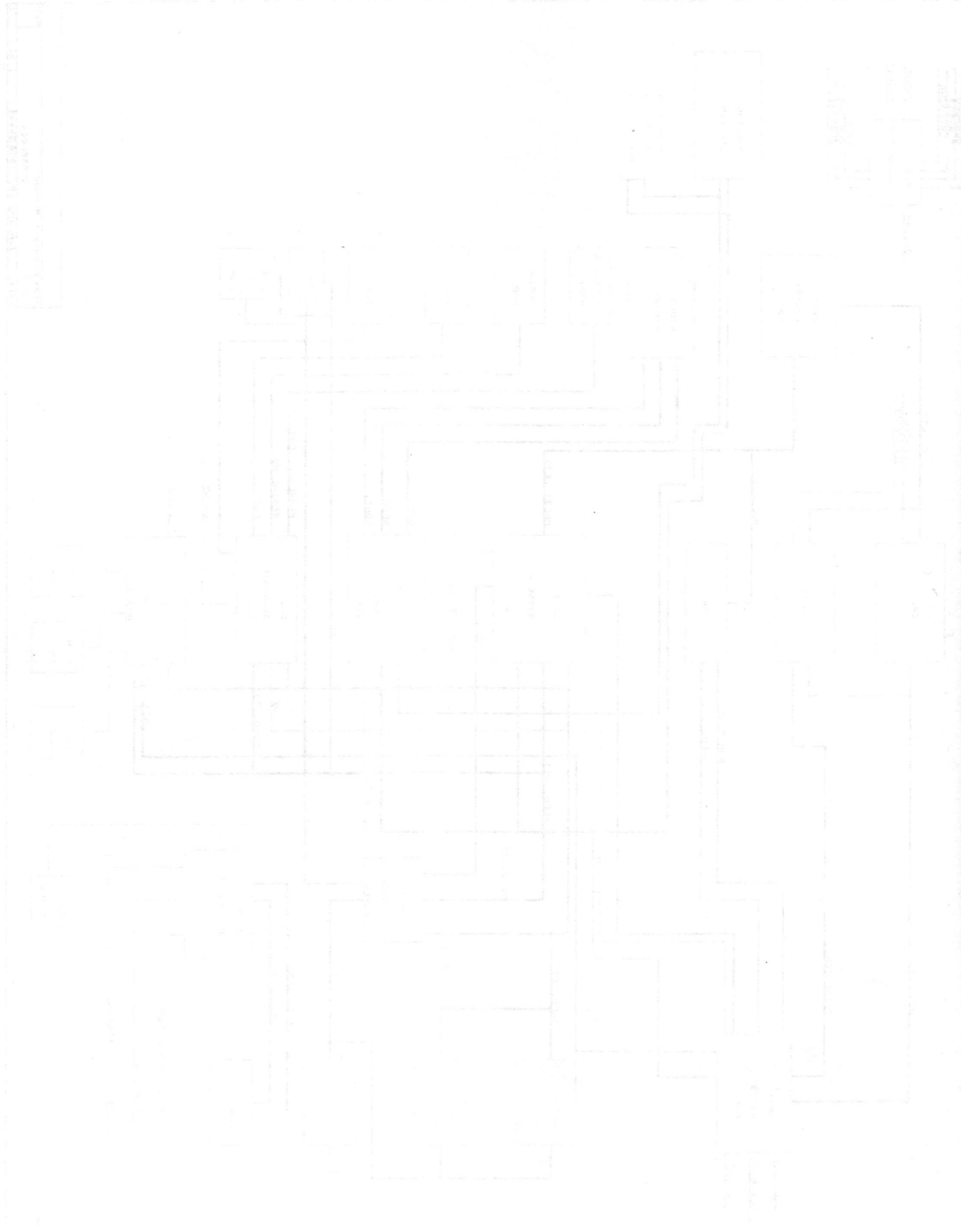


Alpha TOP	
Size Document Number	REV
B 6753H0039	04
Date: January 3, 1996	Sheet 31 of 31



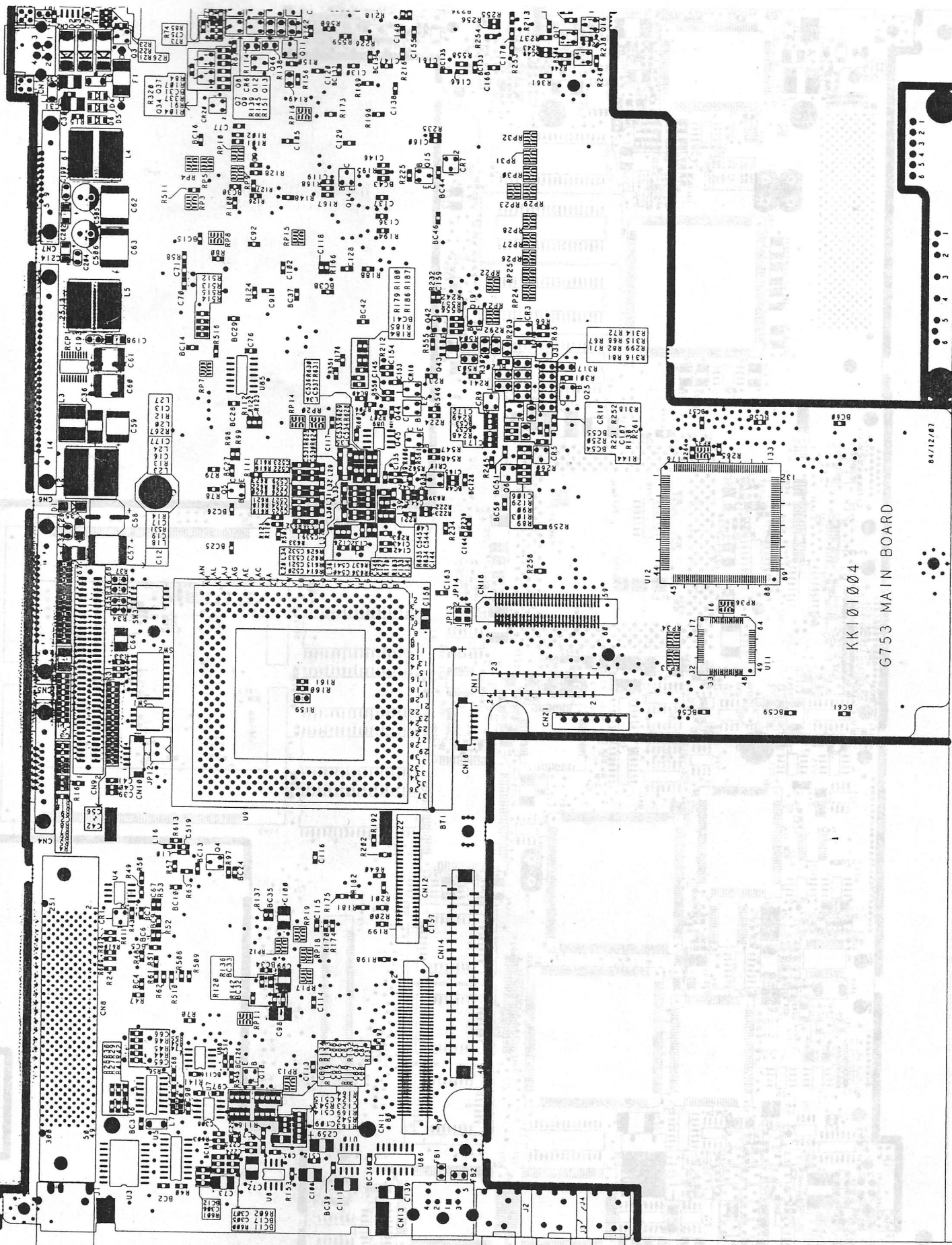


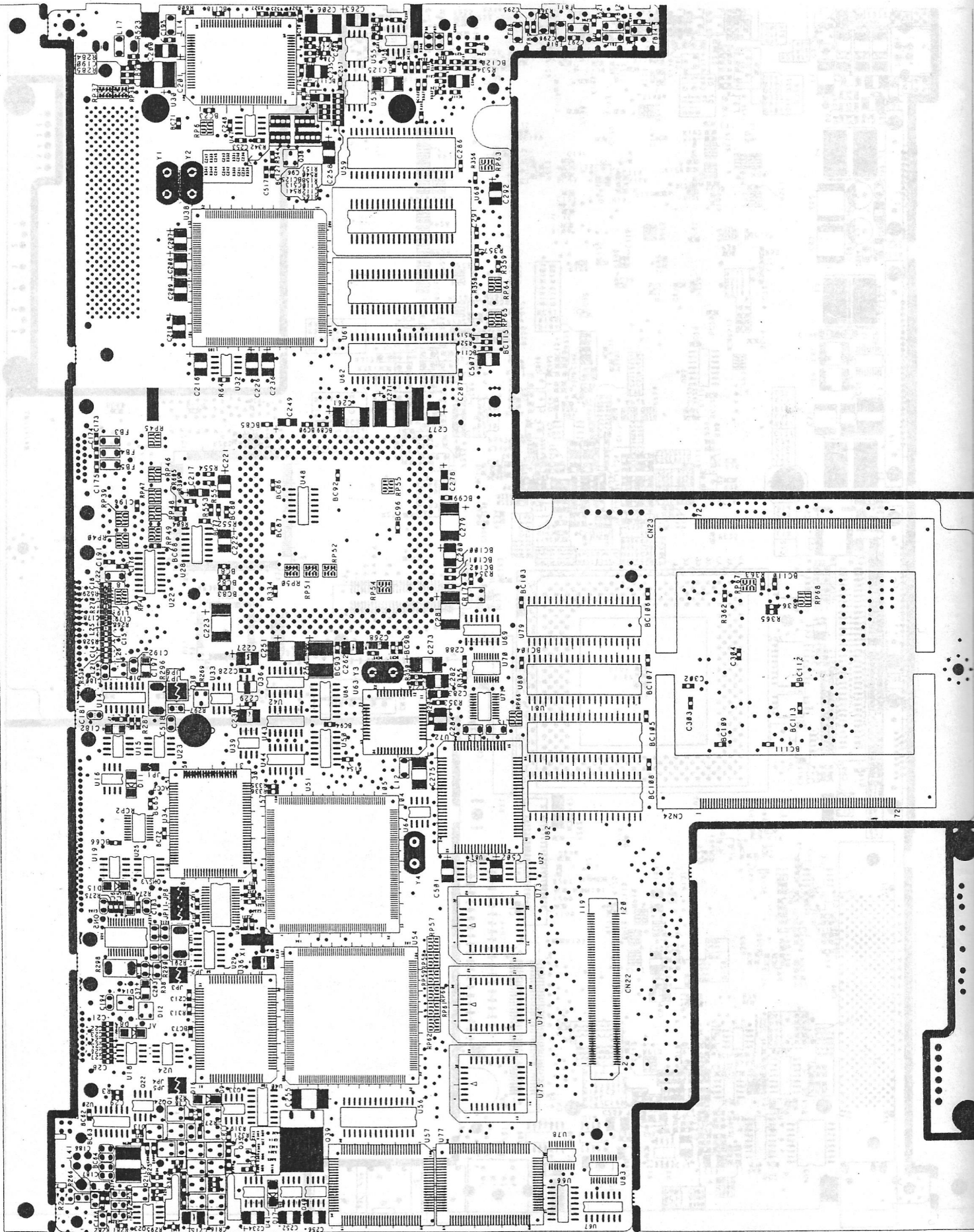
Chapter 13 System Body Diagram

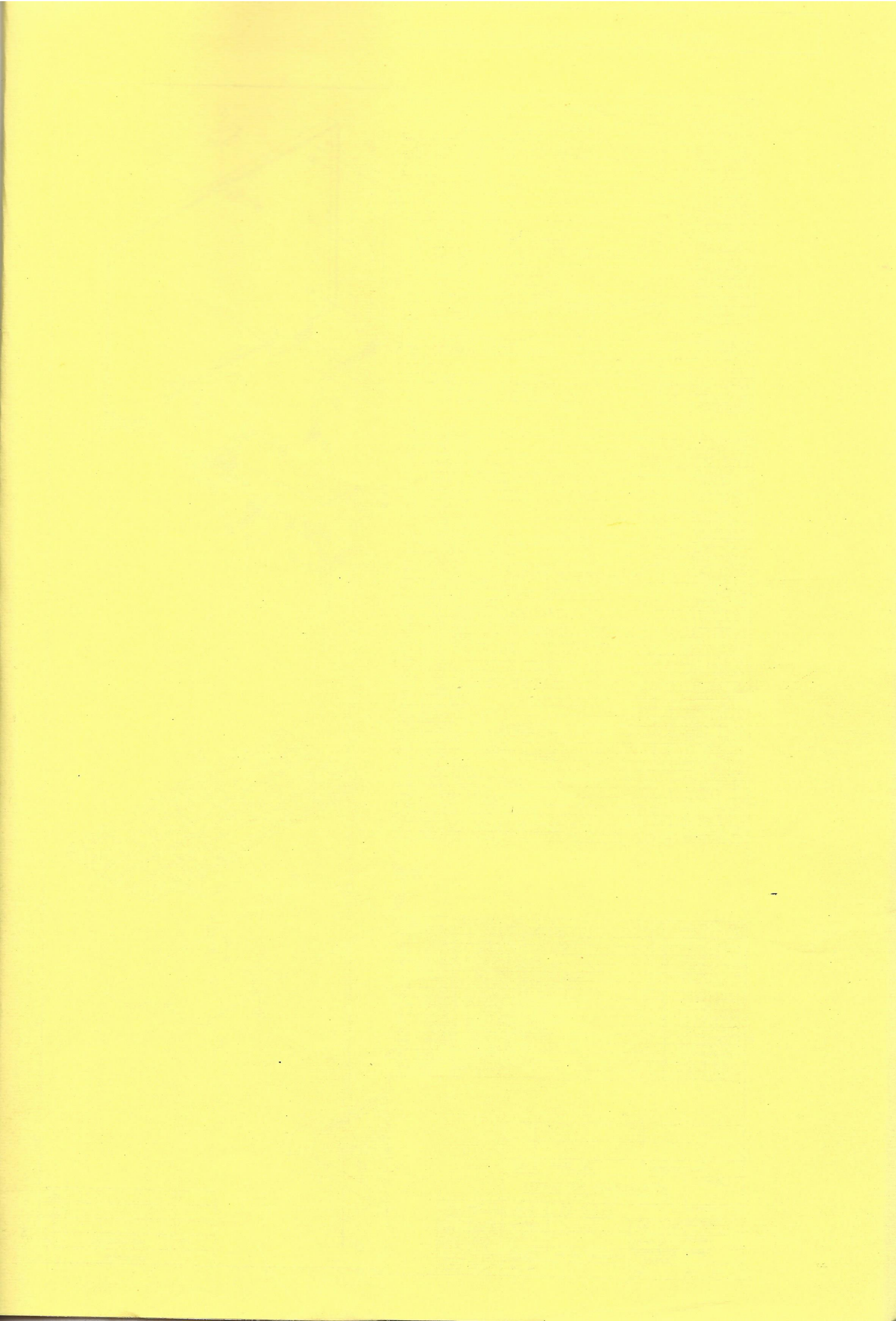


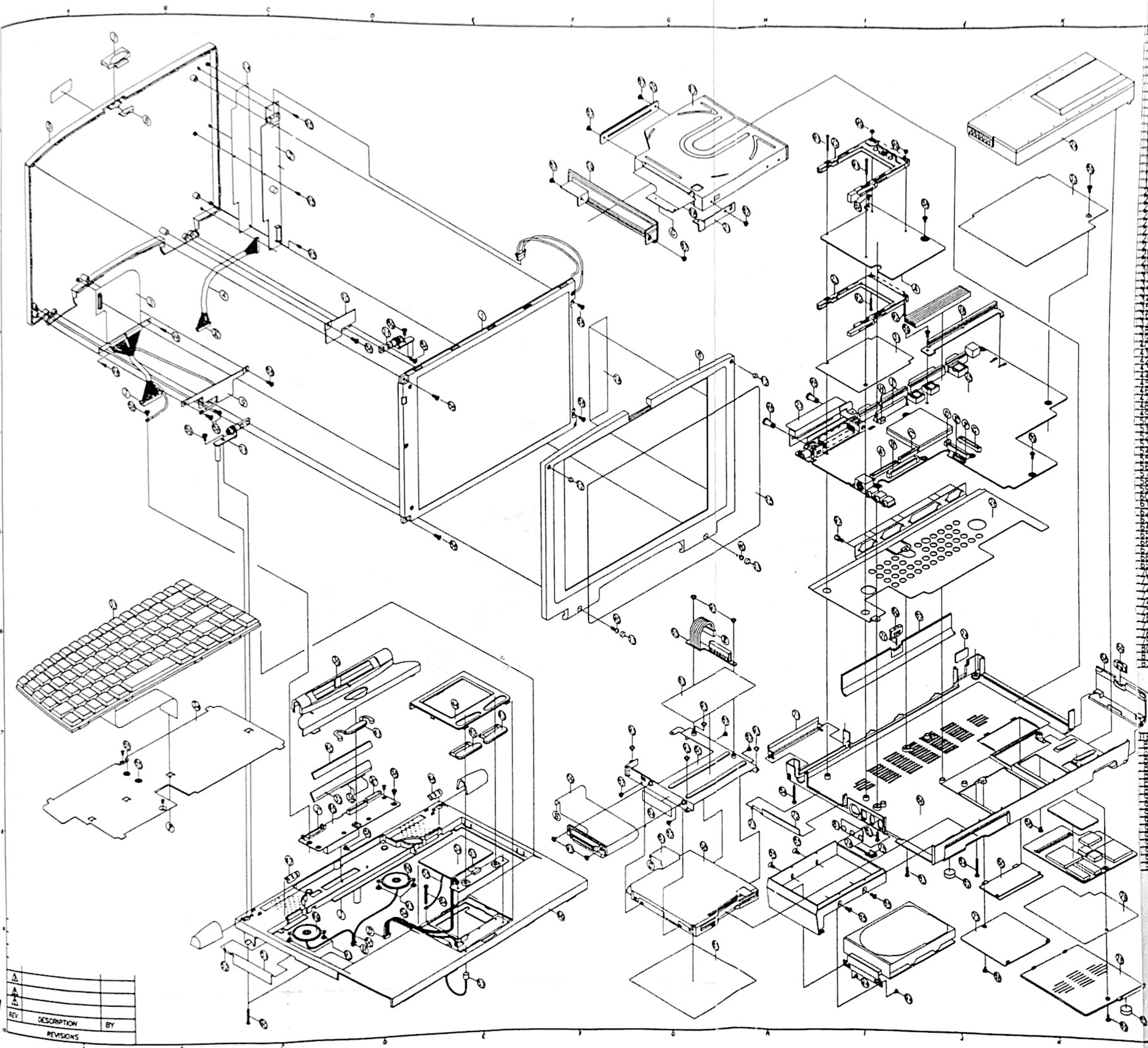


Chapter 14 Main Board Layout Placement



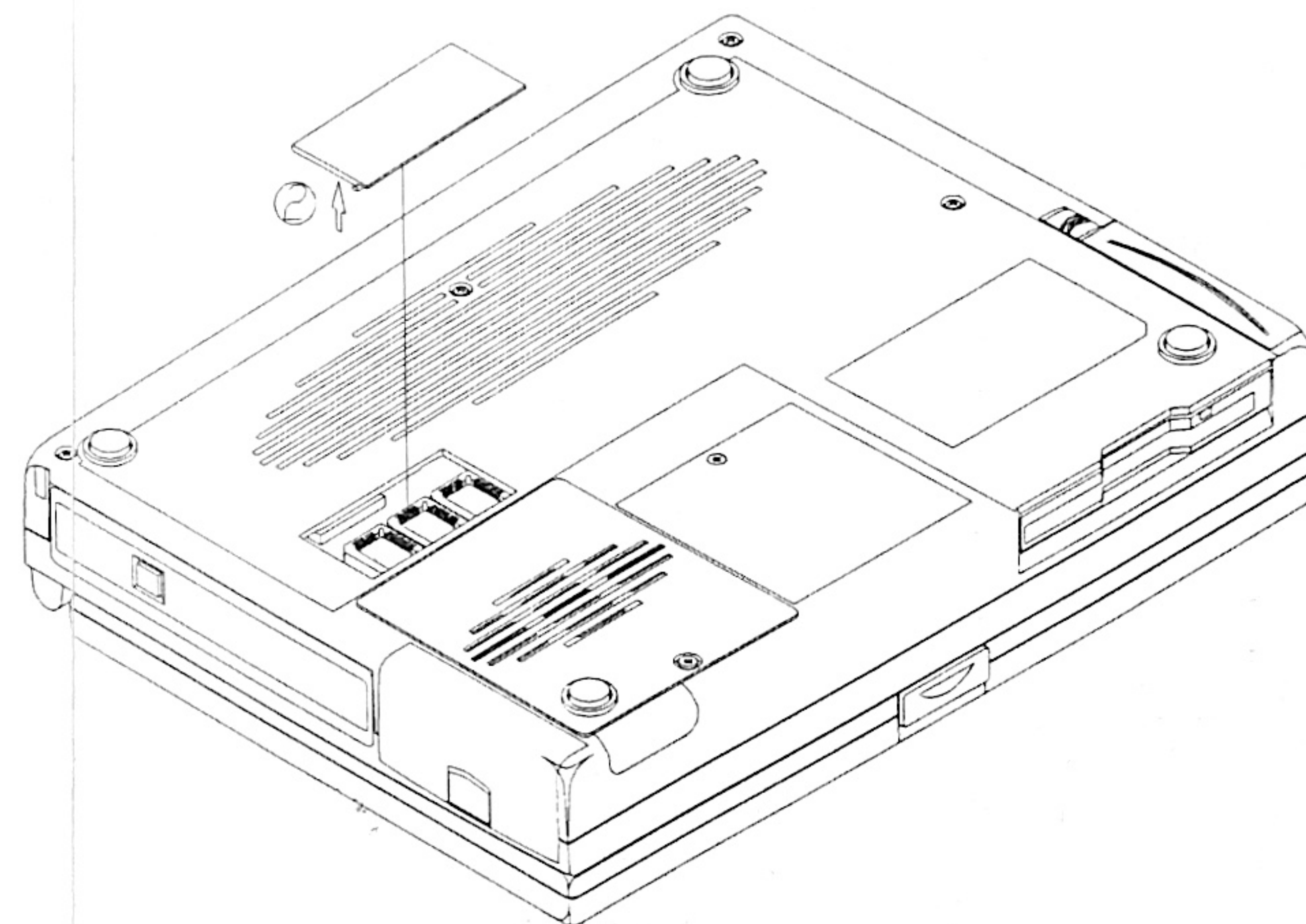
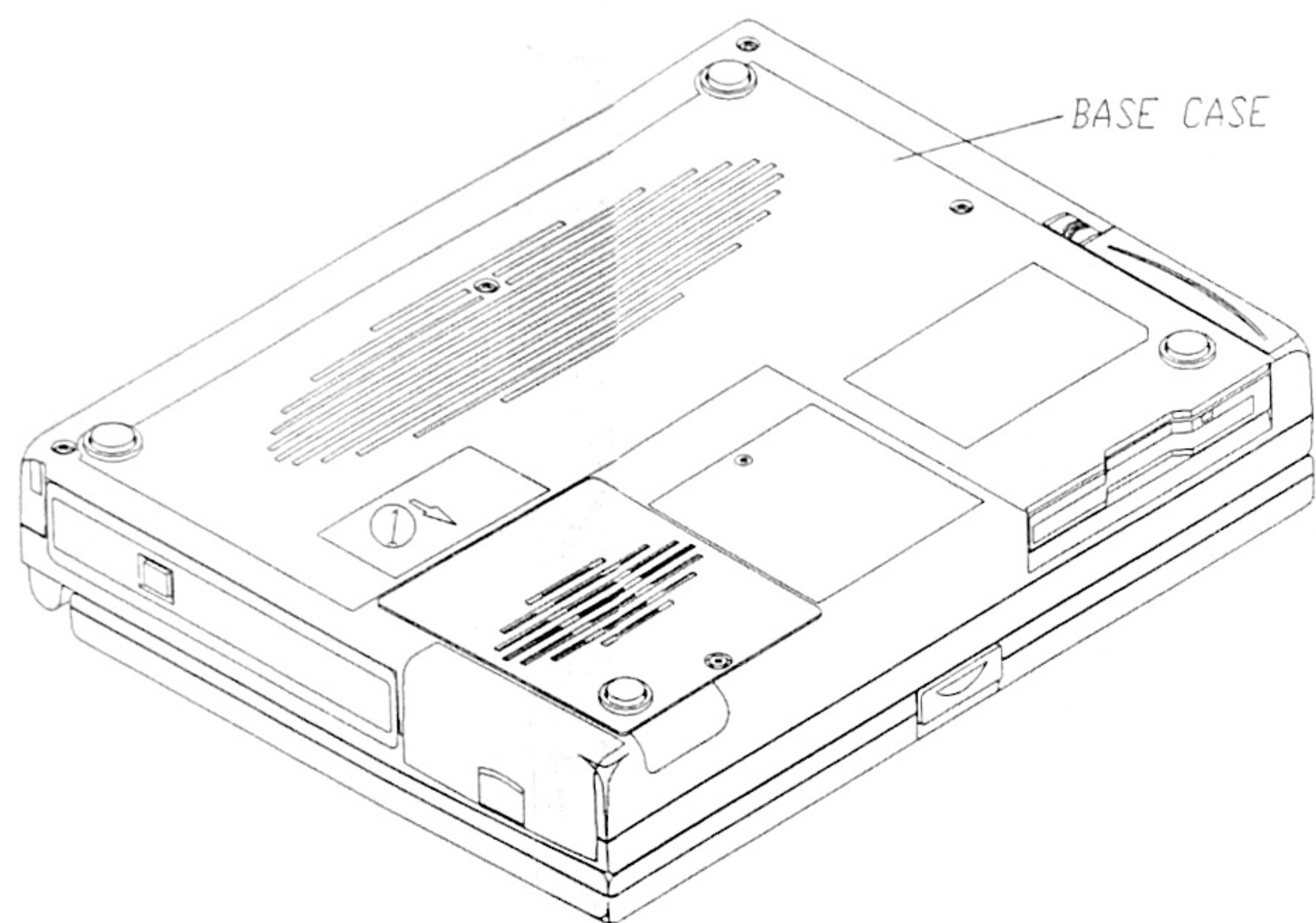




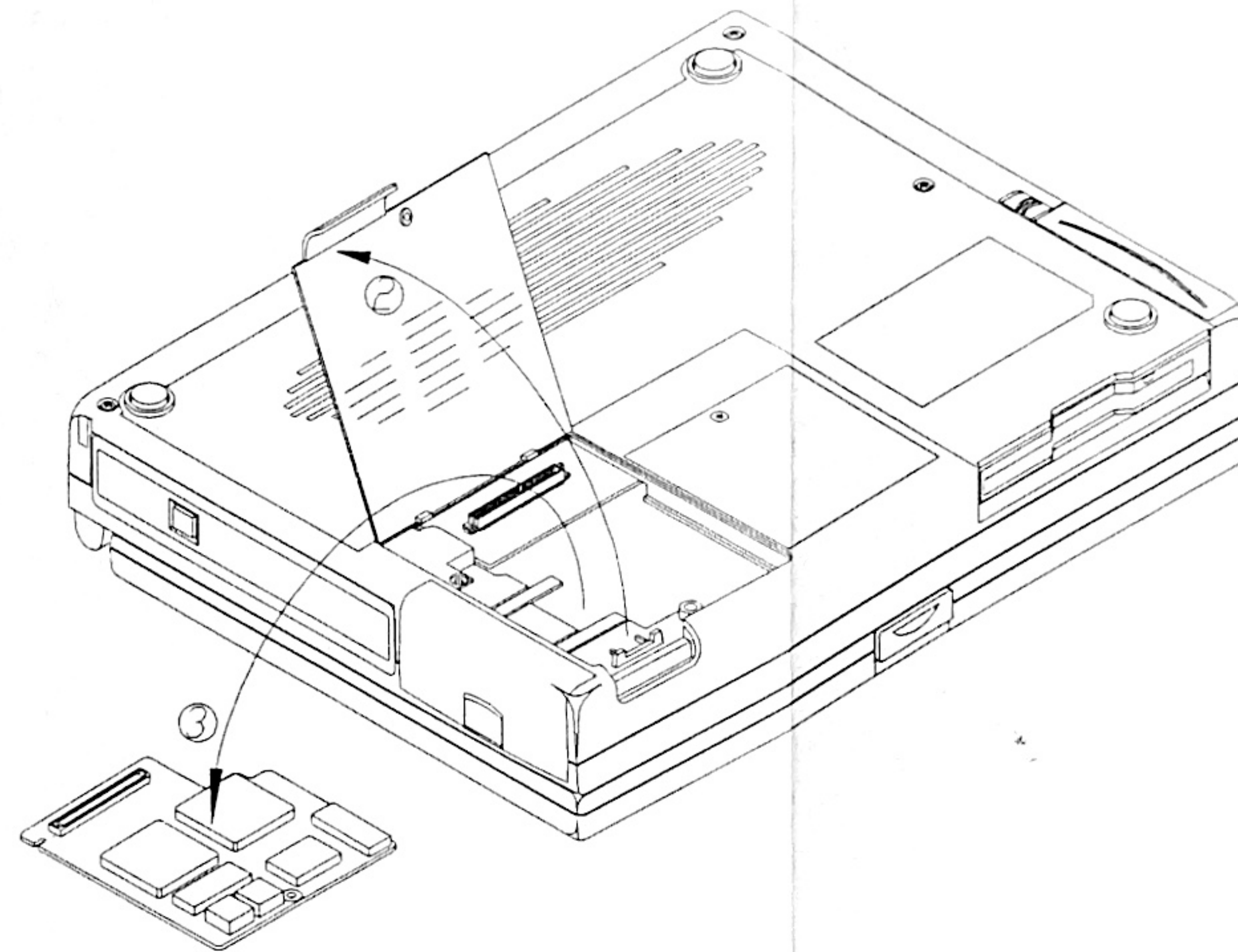
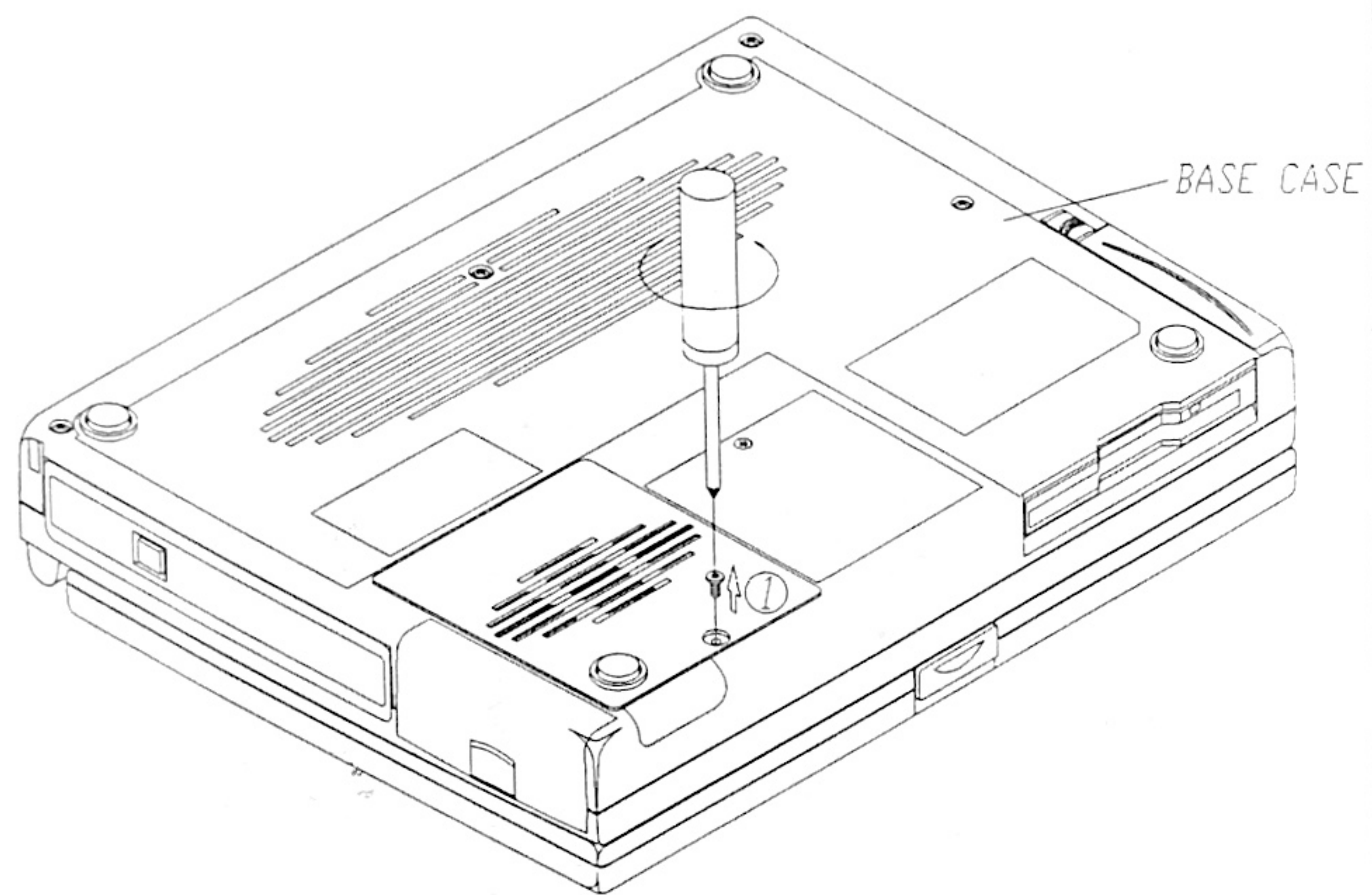
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3	M2 240 5X4-BLACK	1	72
4	M2 240 5X6-NI	1	125
5	M2 240 45X1-NI	1	125
6	M2 240 45X1-BLACK	1	125
7	M2 240 45X6-BLACK	1	125
8	M2 240 5X6-NI	1	125
9	M2 240 45X1-NI	1	125
10	M2 240 45X1-NI	1	125
11	M2 240 45X1-NI	1	125
12	M2 240 45X1-NI	1	125
13	M2 240 45X1-NI	1	125
14	M2 240 45X1-NI	1	125
15	M2 240 45X1-NI	1	125
16	M2 240 45X1-NI	1	125
17	M2 240 45X1-NI	1	125
18	M2 240 45X1-NI	1	125
19	M2 240 45X1-NI	1	125
20	M2 240 45X1-NI	1	125
21	M2 240 45X1-NI	1	125
22	M2 240 45X1-NI	1	125
23	M2 240 45X1-NI	1	125
24	M2 240 45X1-NI	1	125
25	M2 240 45X1-NI	1	125
26	M2 240 45X1-NI	1	125
27	M2 240 45X1-NI	1	125
28	M2 240 45X1-NI	1	125
29	M2 240 45X1-NI	1	125
30	M2 240 45X1-NI	1	125
31	M2 240 45X1-NI	1	125
32	M2 240 45X1-NI	1	125
33	M2 240 45X1-NI	1	125
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39	M2 240 45X1-NI	1	125
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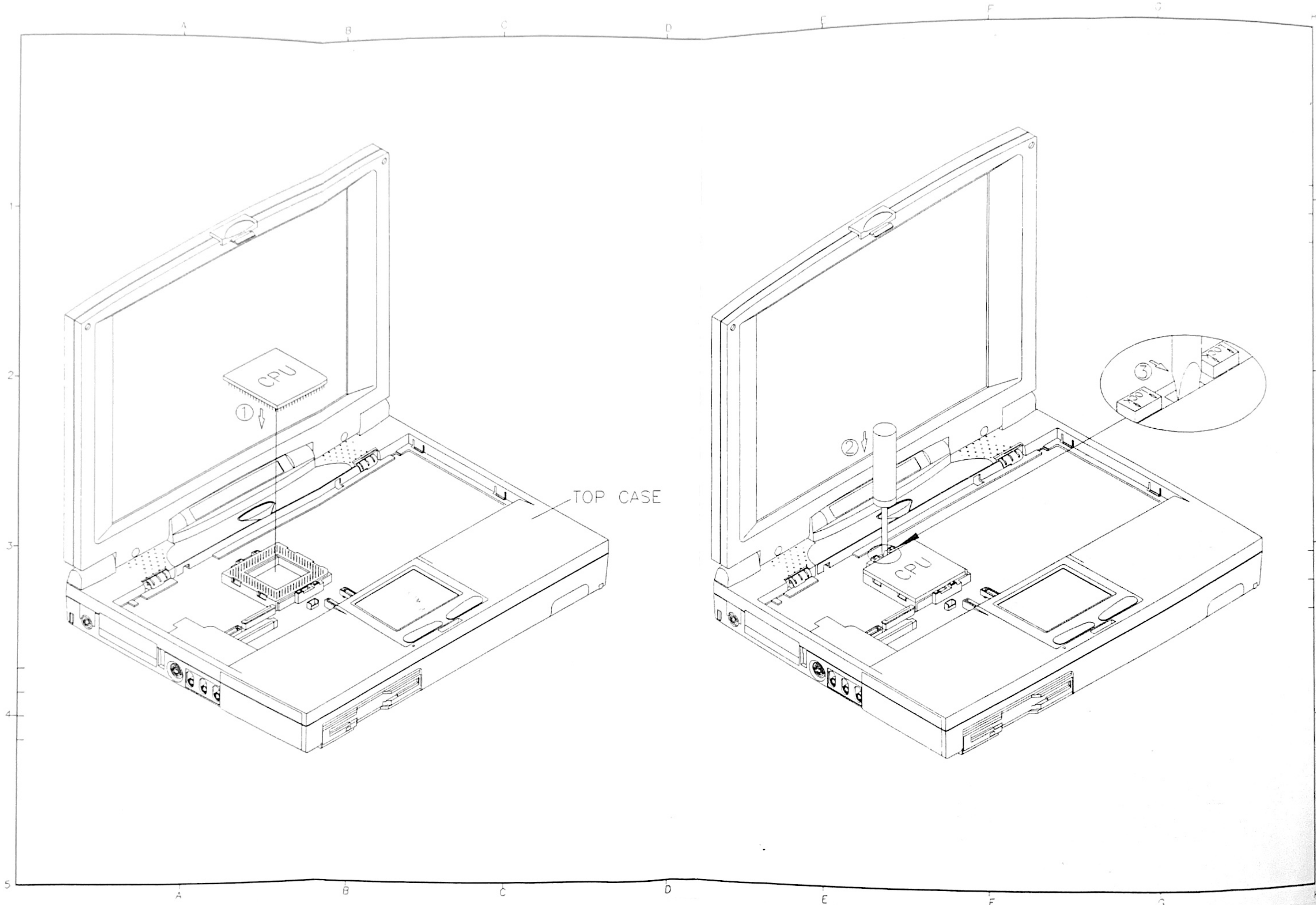
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10-30	0.10			DIFFERENT			
30-100	0.15			DATE:		REV.	
100 /	0.20					SK.	

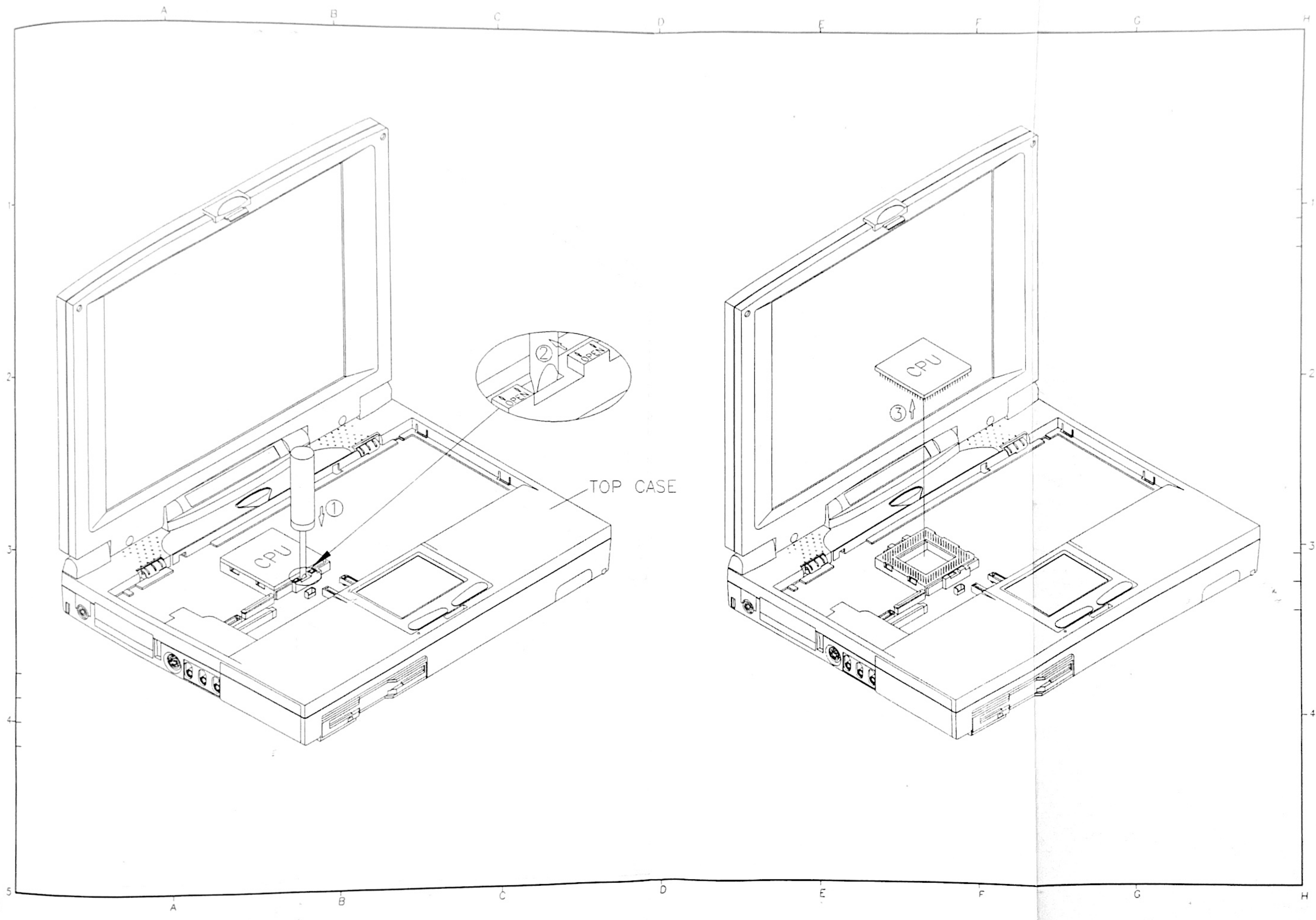


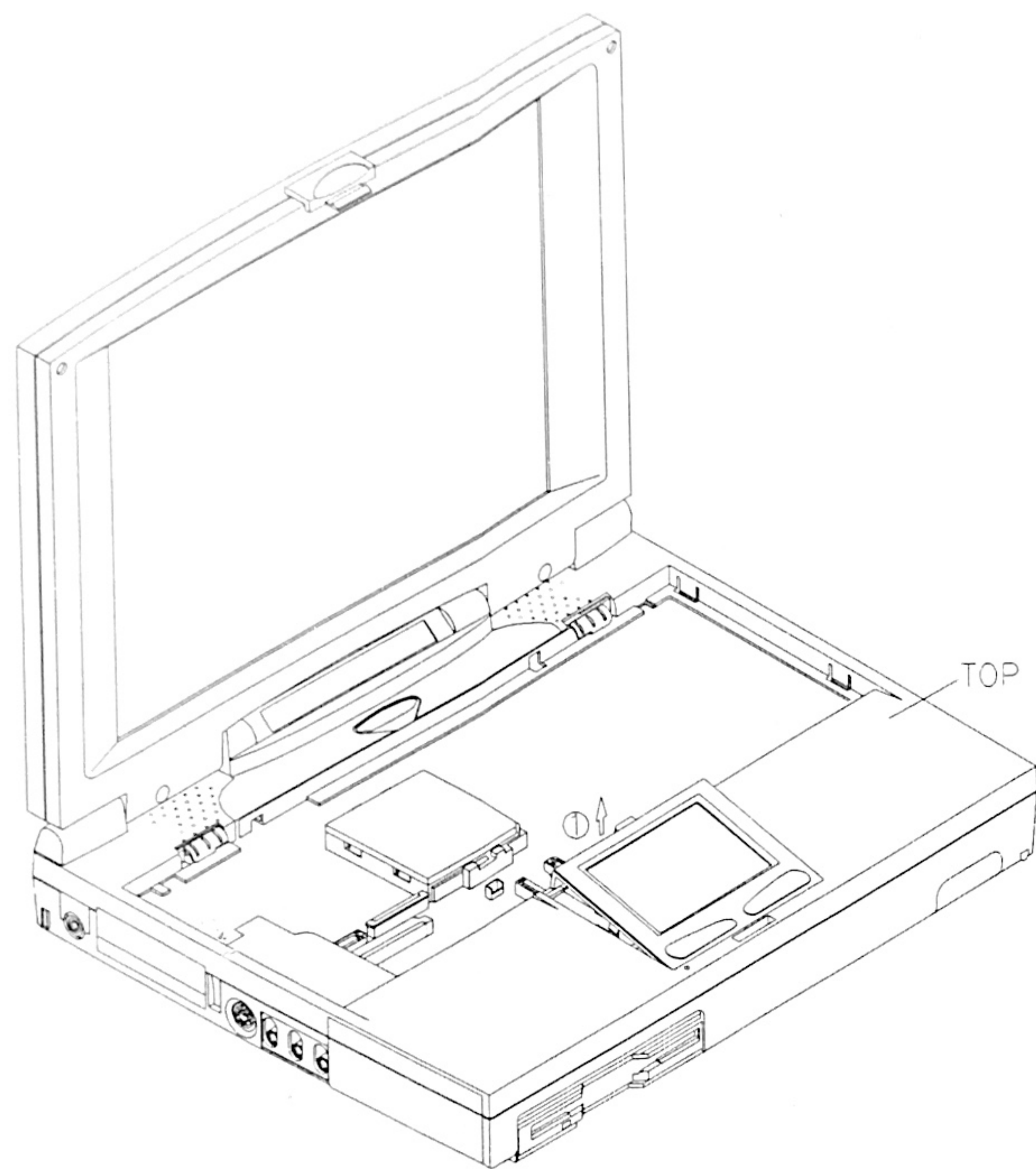
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2	BIOS COVER	1



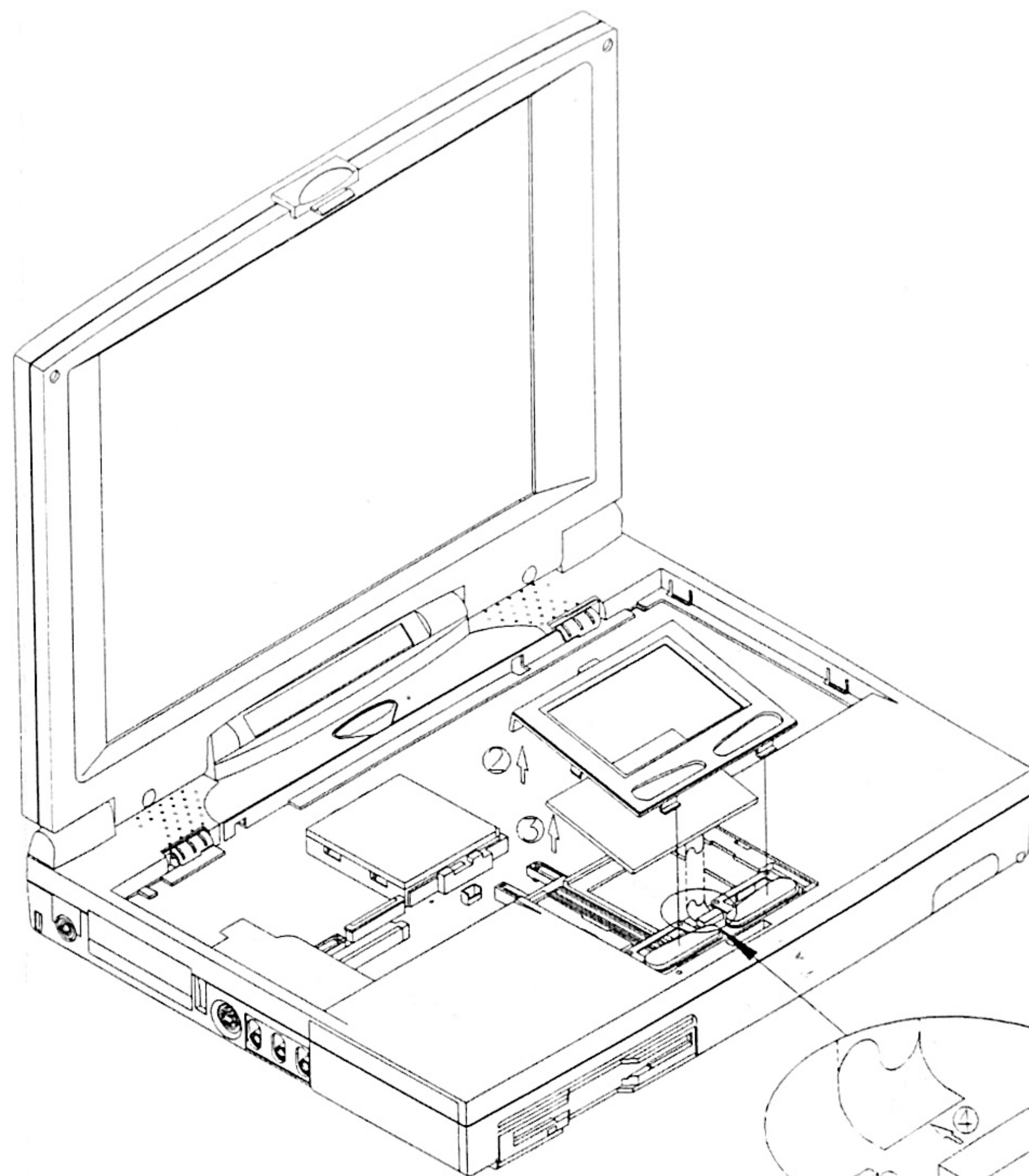
NO	PART NAME	Q'TY
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2	M-PEG COVER	1
3	M-PEG CARD	1



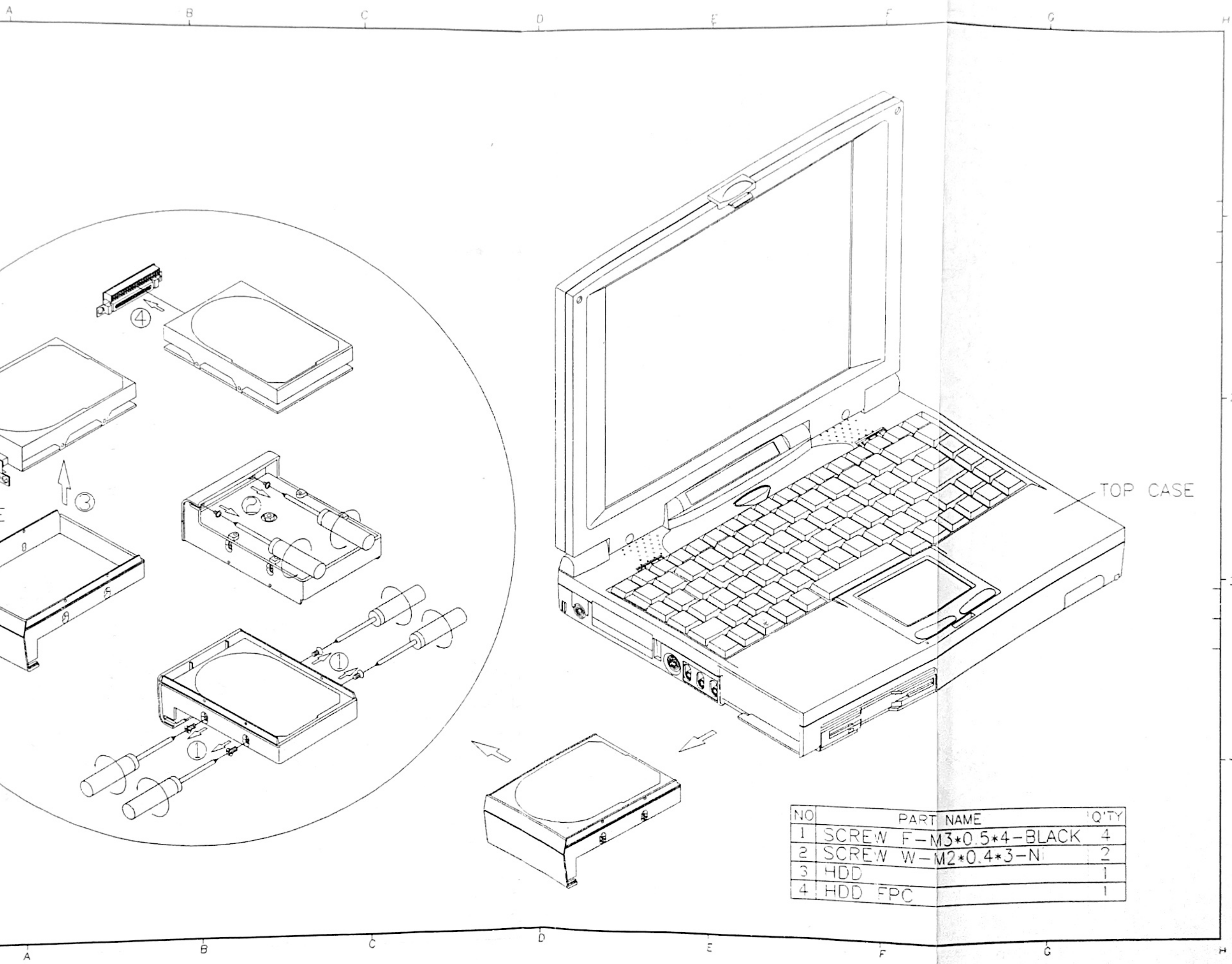




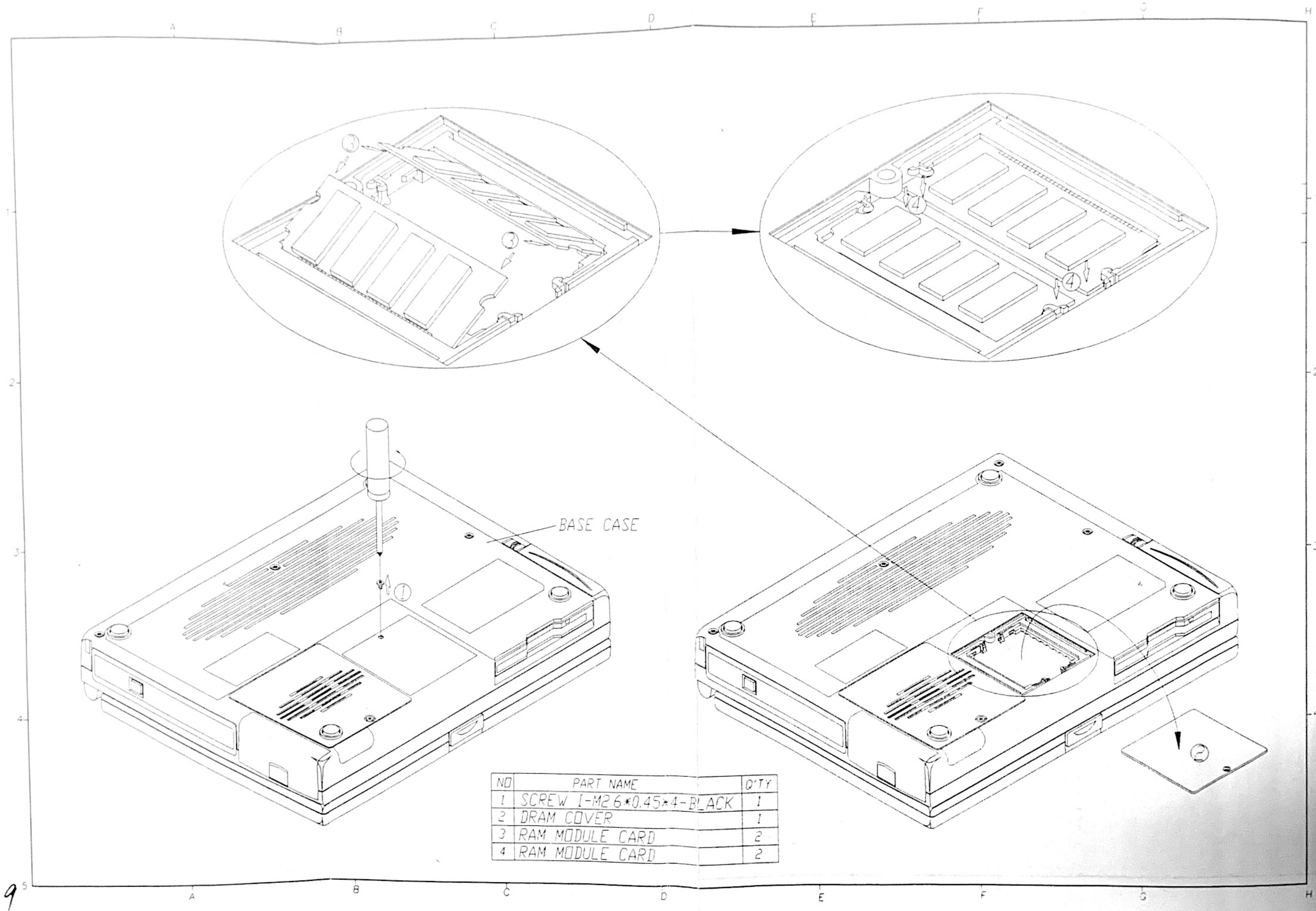
TOP CASE

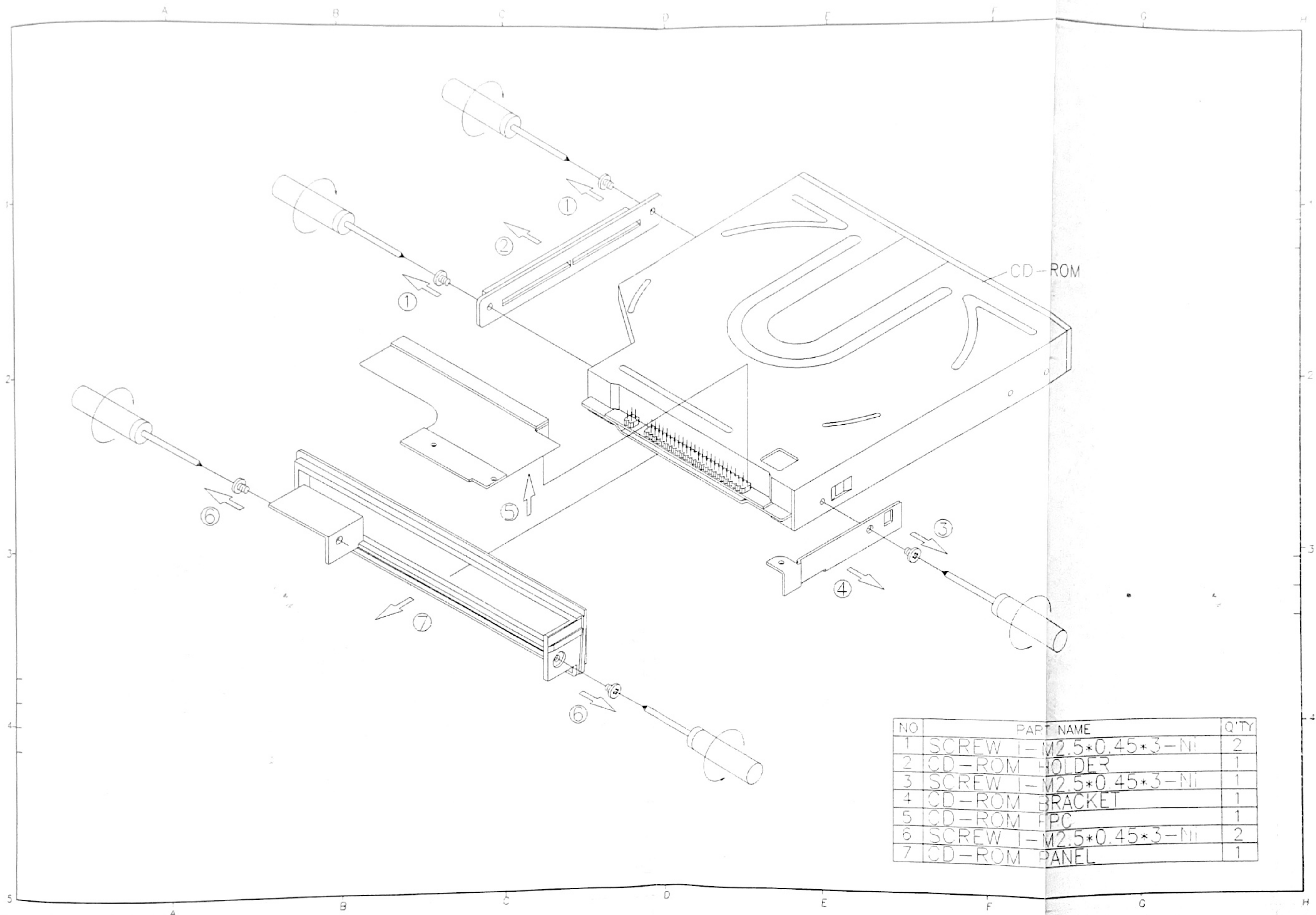


NO	PART NAME	Q'TY
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2	TOUCH PAD COVER	1
3	TOUCH PAD	1
4	TOUCH PAD FFC	1

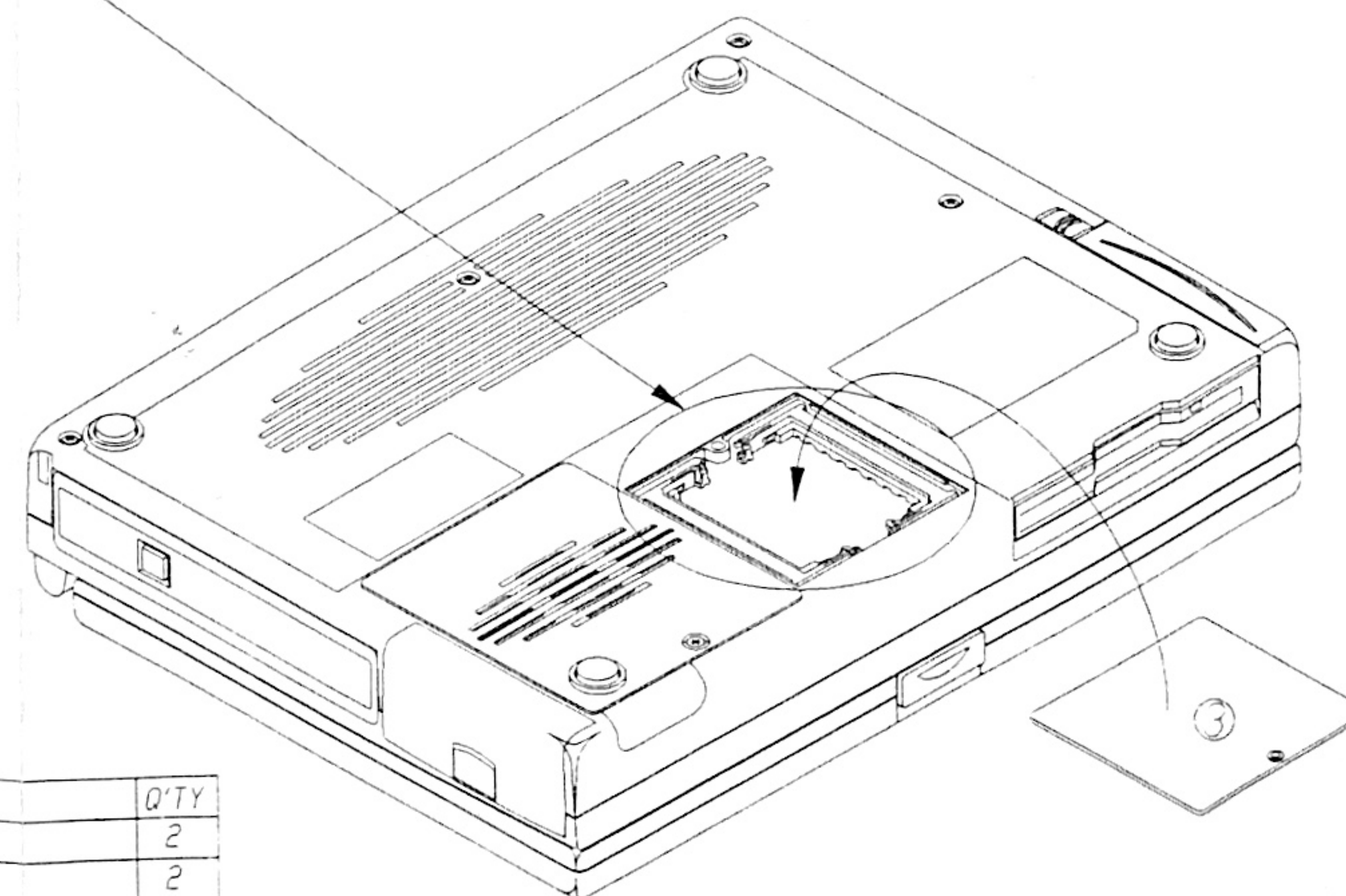
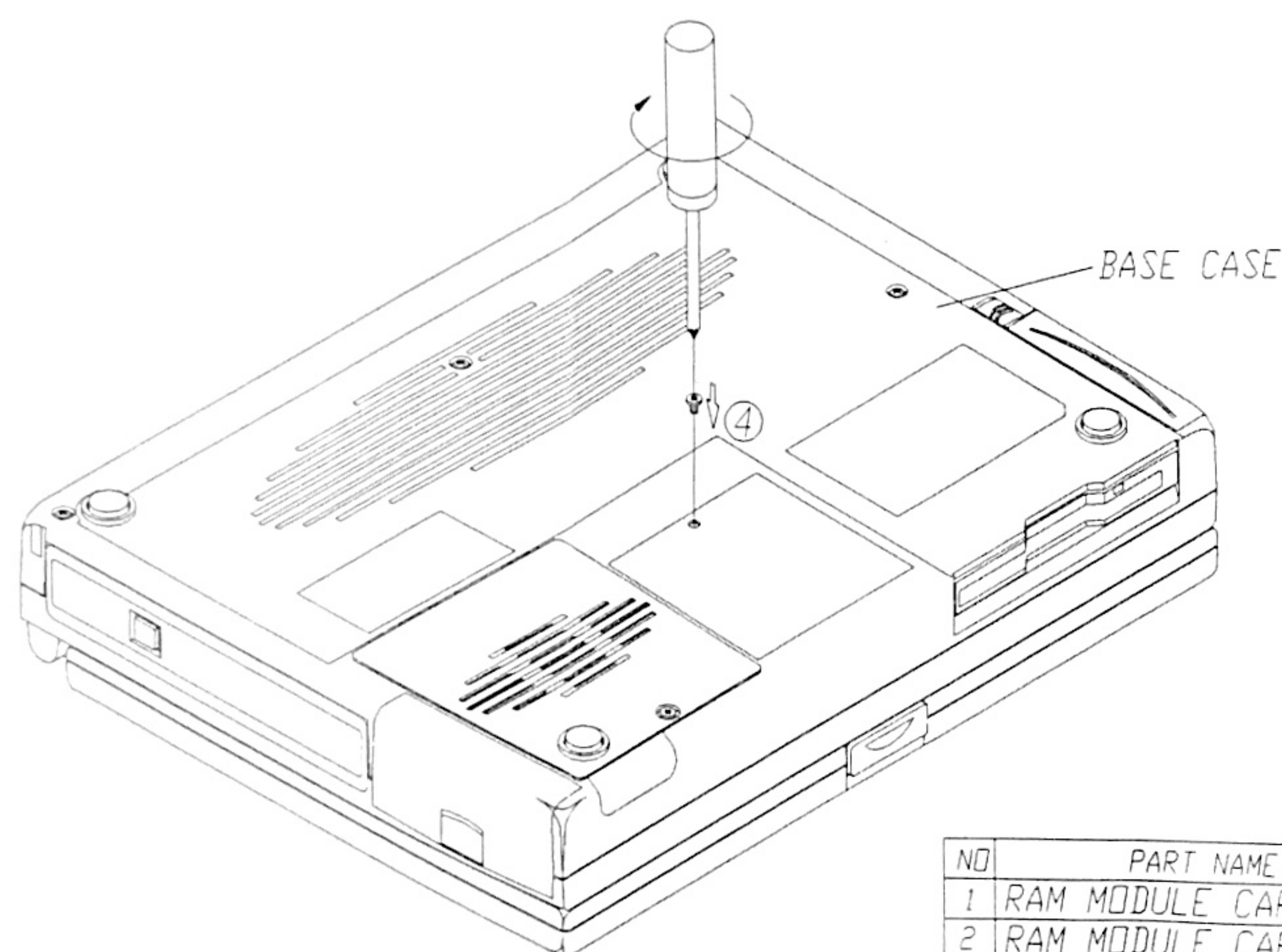
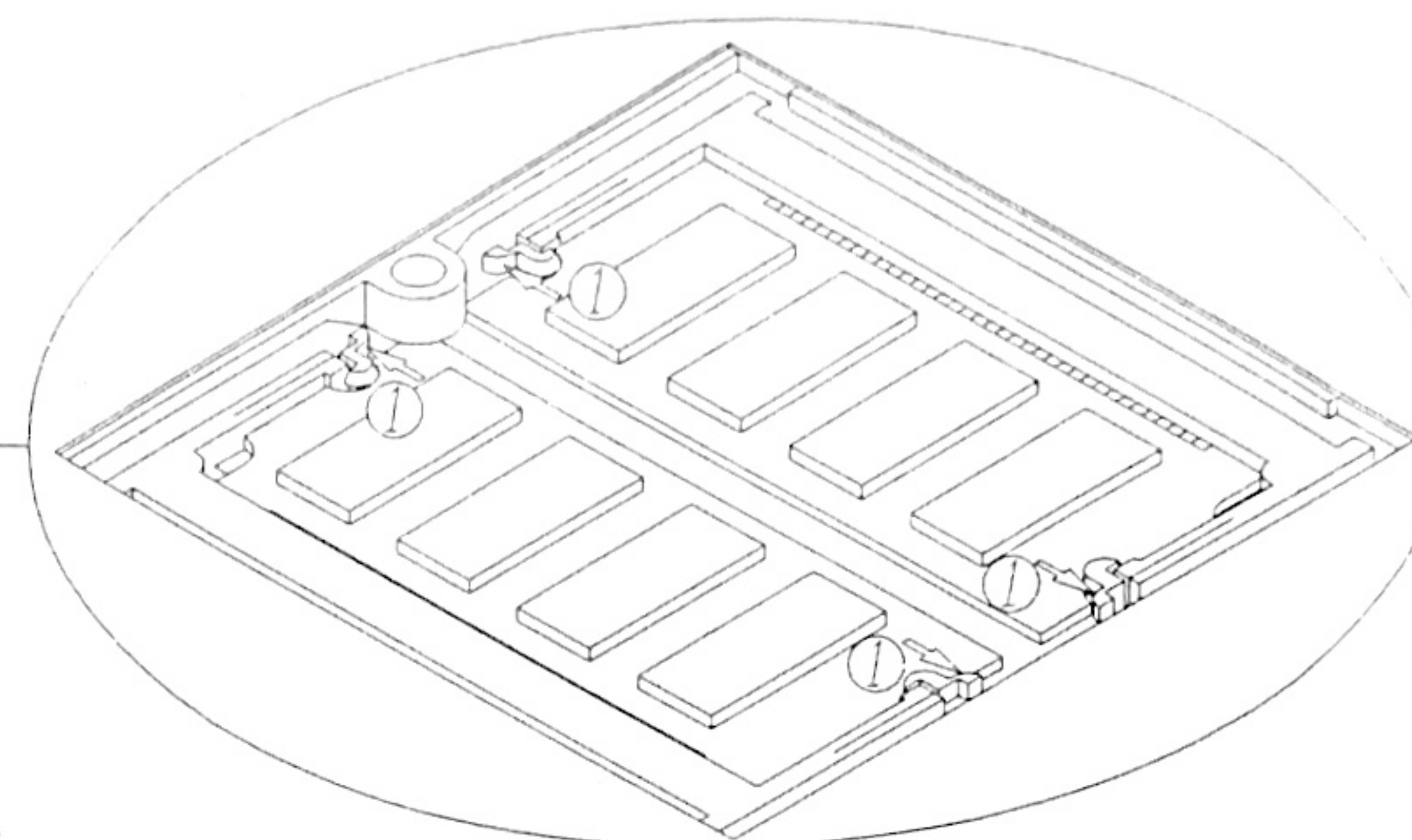
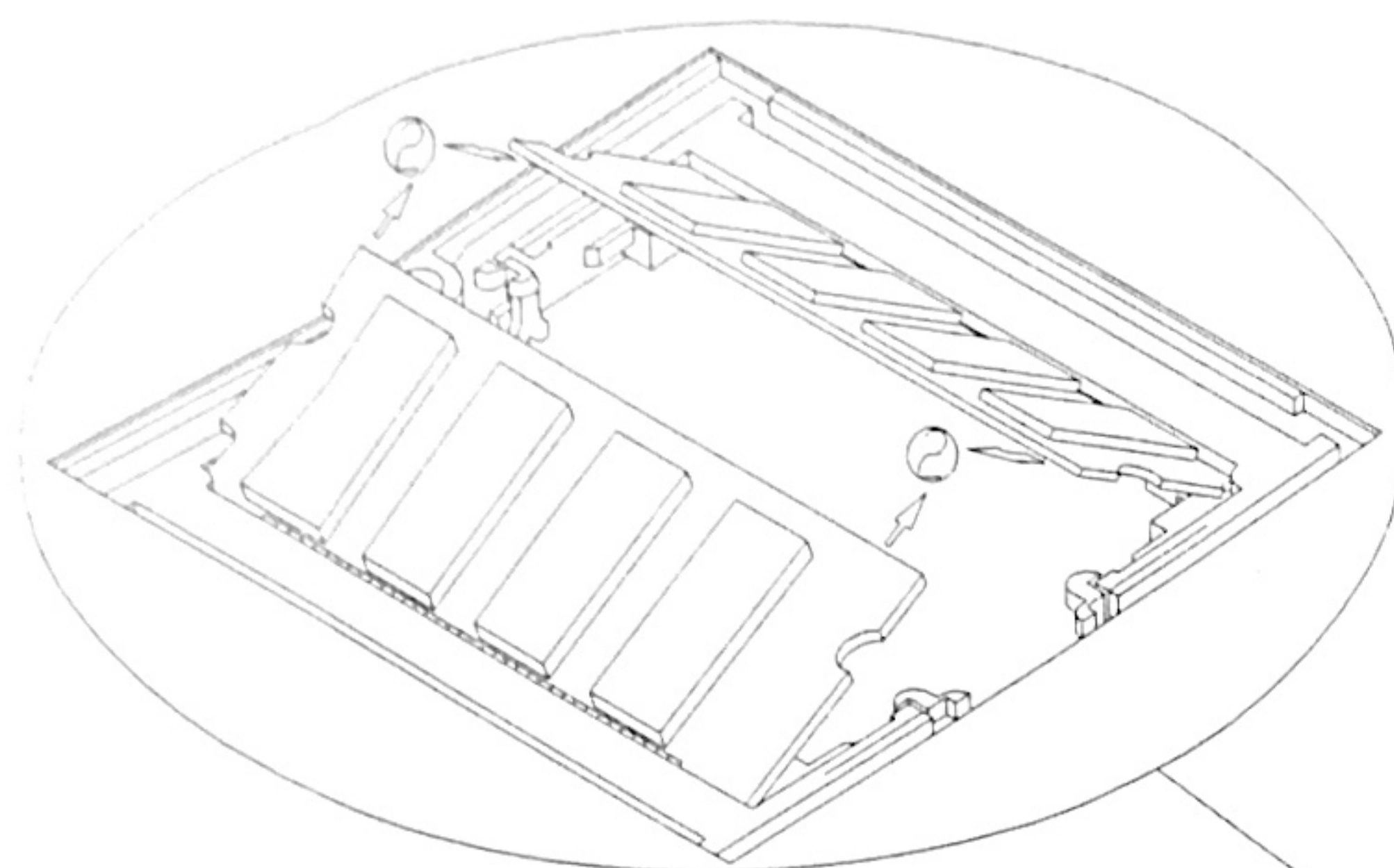


NO	PART NAME	Q'TY
1	SCREW F-M3*0.5*4-BLACK	4
2	SCREW W-M2*0.4*3-N	2
3	HDD	1
4	HDD FPC	1

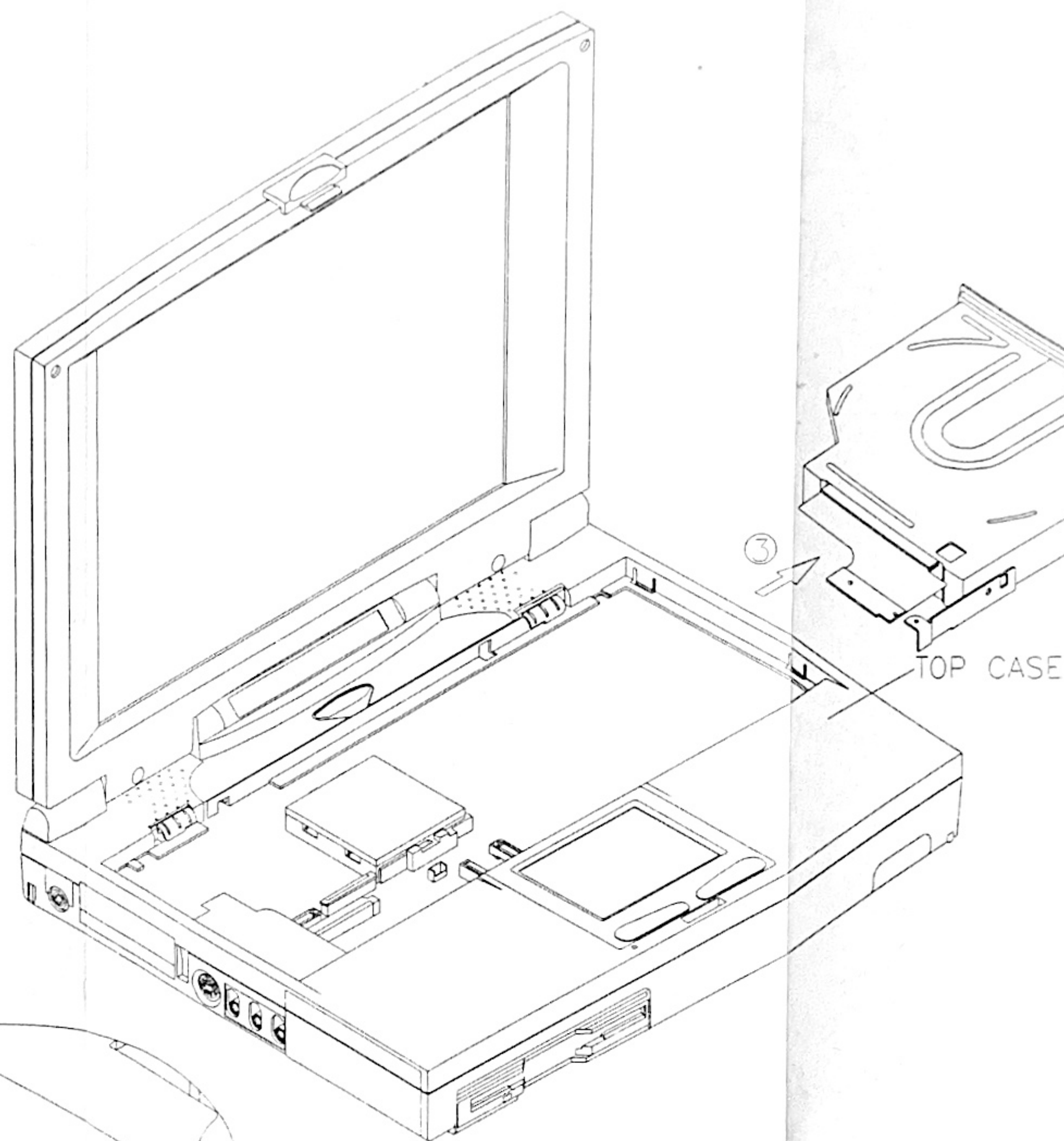
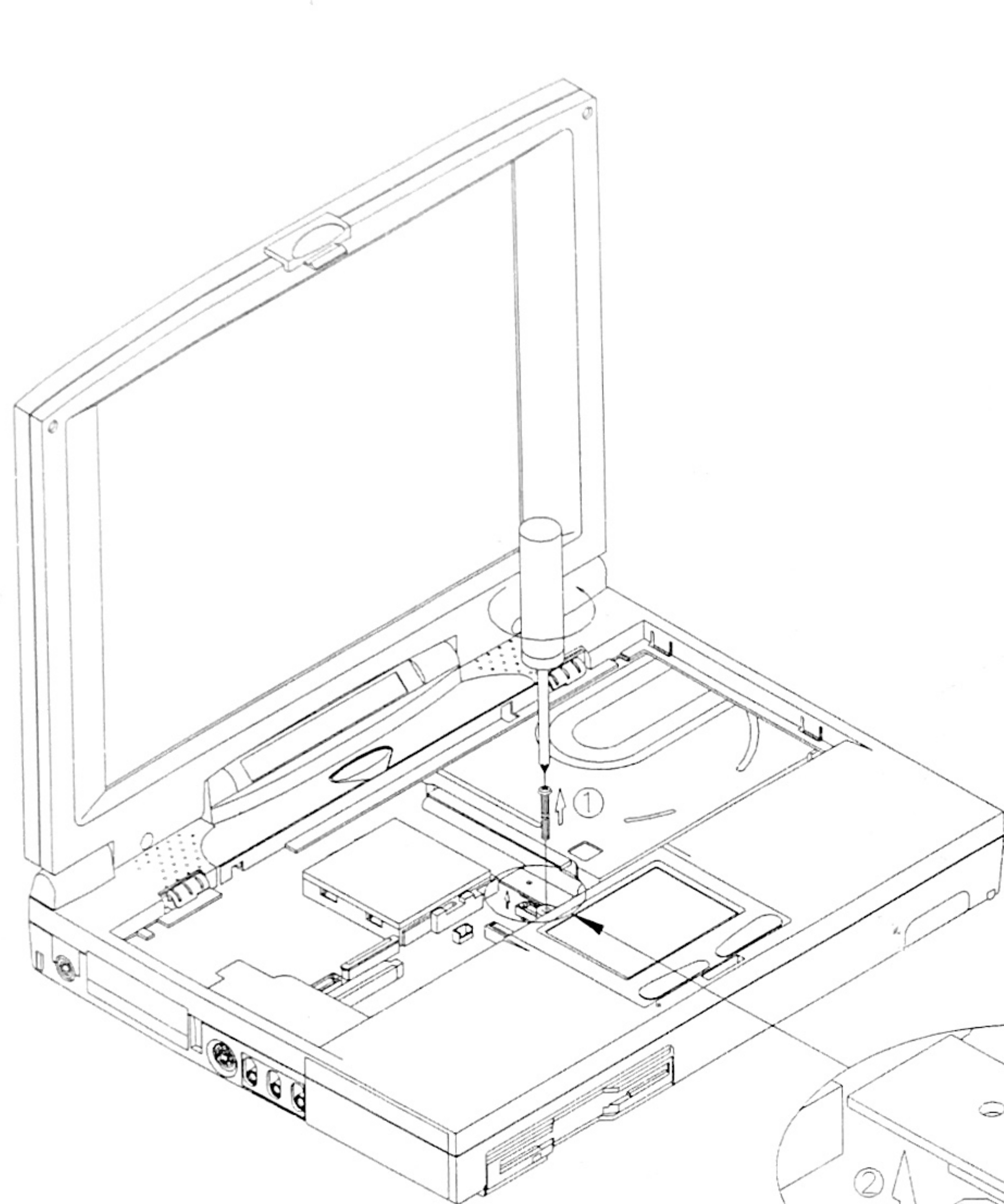




NO	PART NAME	Q'TY
1	SCREW 1-M2.5*0.45*3-NI	2
2	CD-ROM HOLDER	1
3	SCREW 1-M2.5*0.45*3-NI	1
4	CD-ROM BRACKET	1
5	CD-ROM FPC	1
6	SCREW 1-M2.5*0.45*3-NI	2
7	CD-ROM PANEL	1

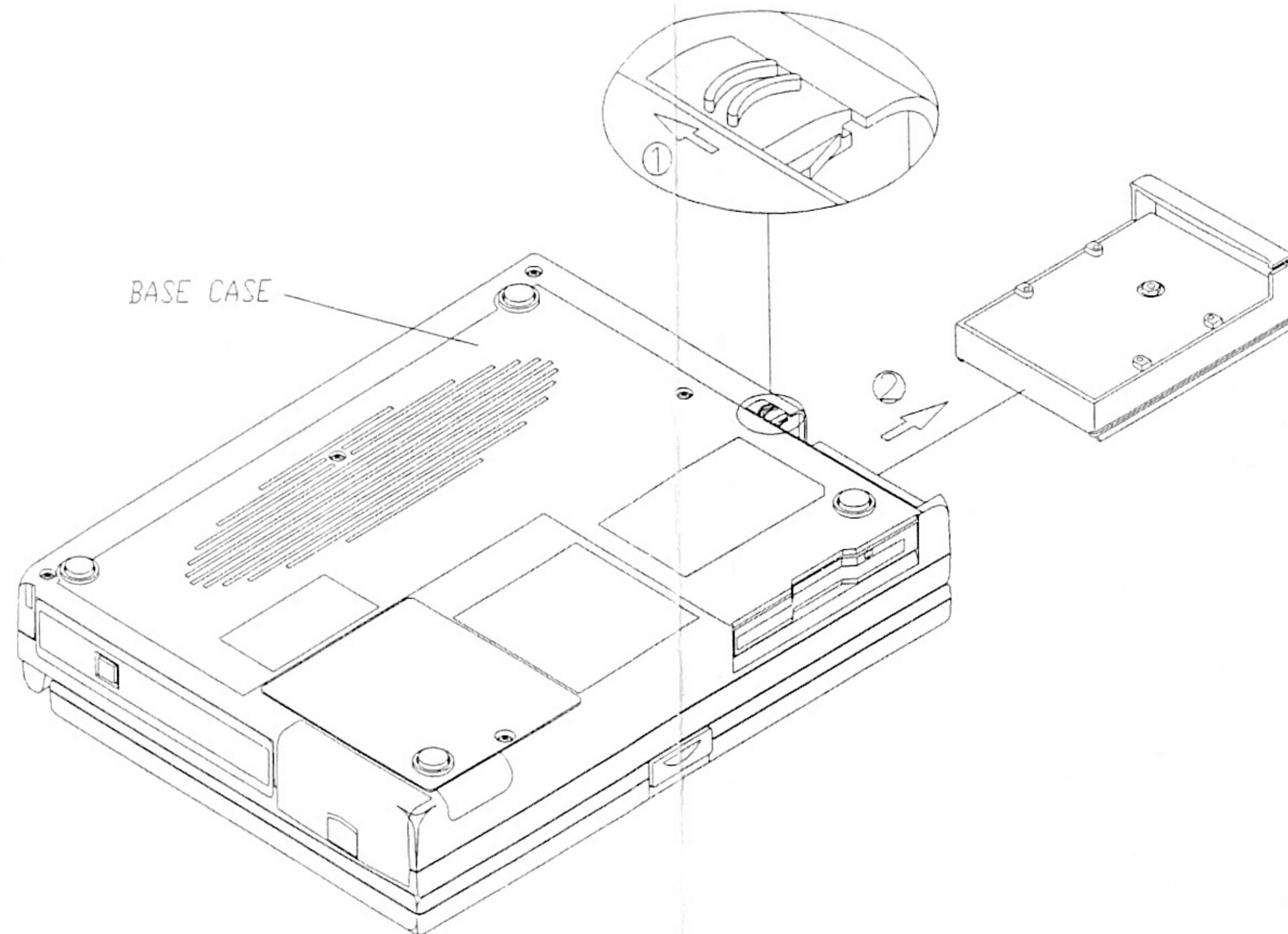


NO	PART NAME	QTY
1	RAM MODULE CARD	2
2	RAM MODULE CARD	2
3	DRAM COVER	1
4	SCREW I-M2 6*0.45*4-BLACK	1

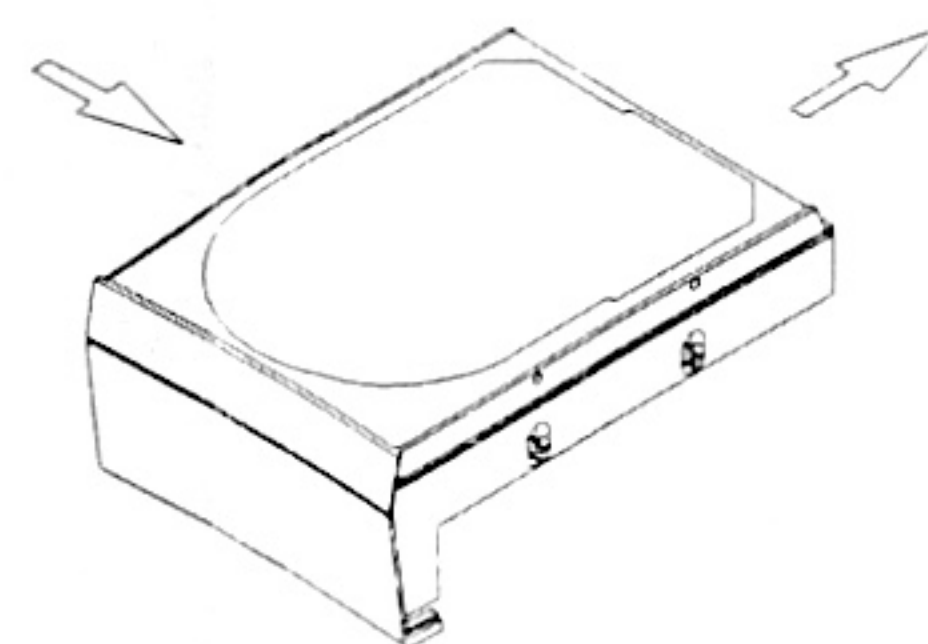
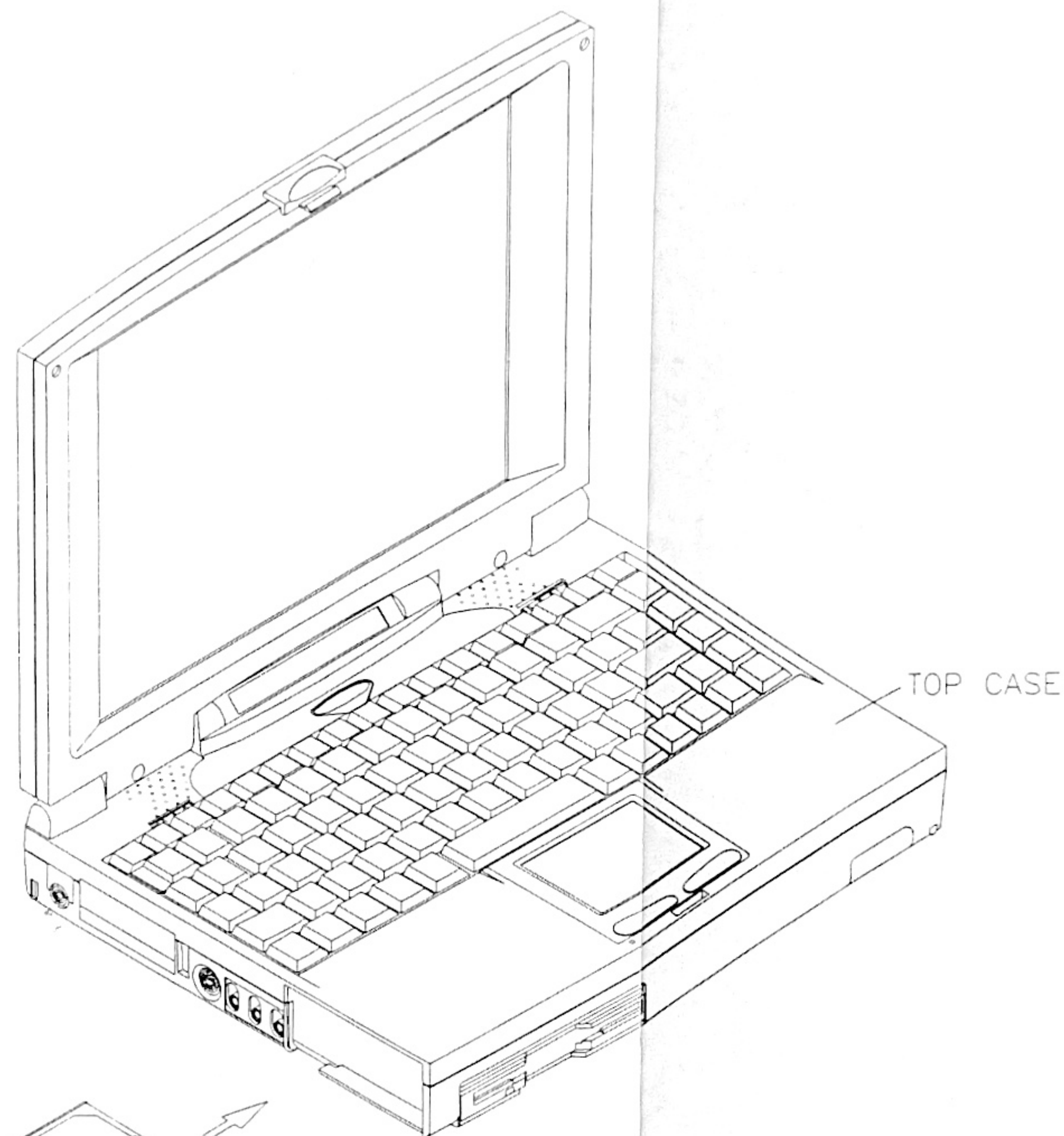
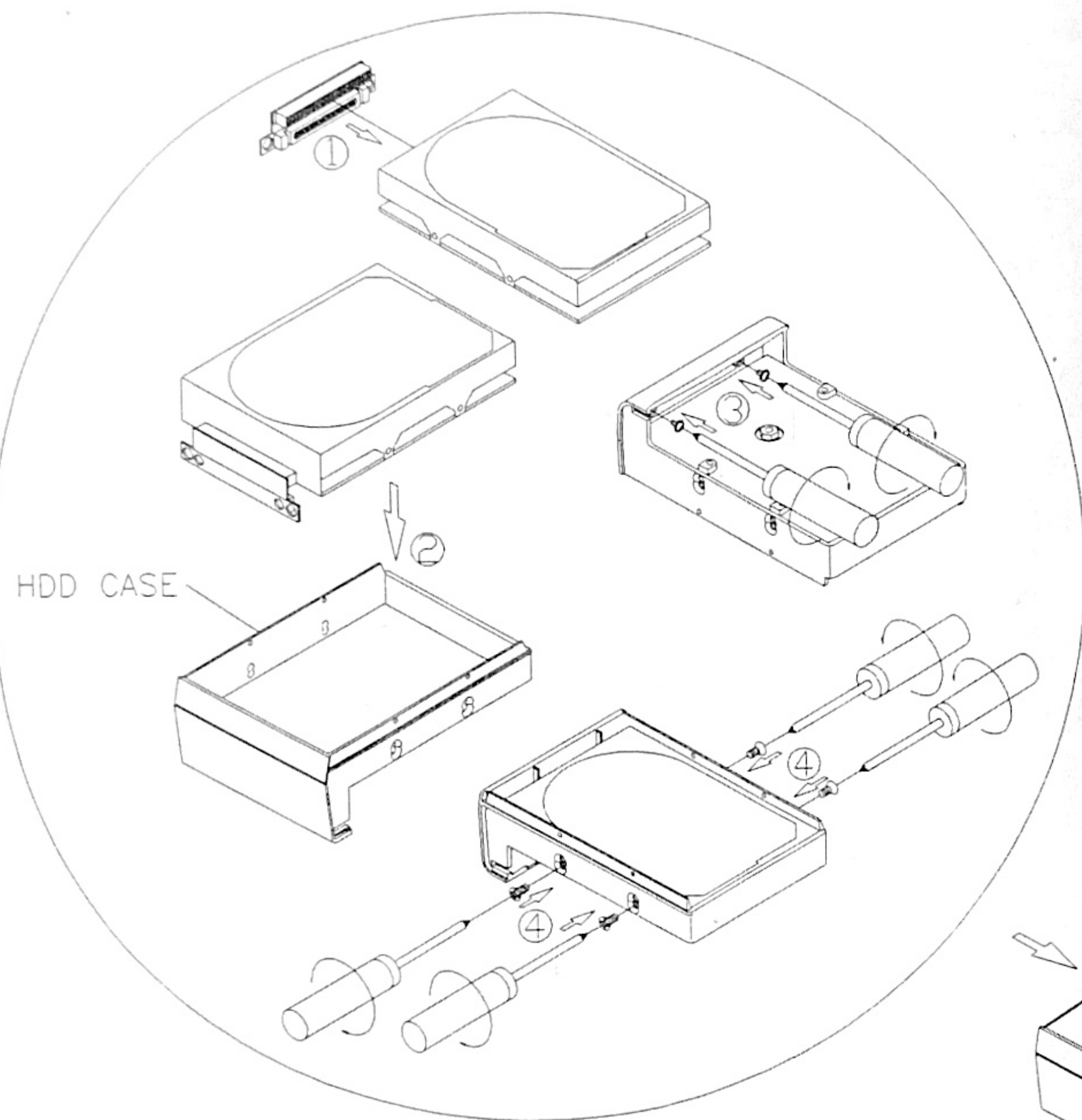


TOP CASE

NO	PART NAME	Q'TY
1	SCREW B-M2.6*0.45*22-BLACK	1
2	CD-ROM CONNECTOR	1
3	CD-ROM MODULE	1

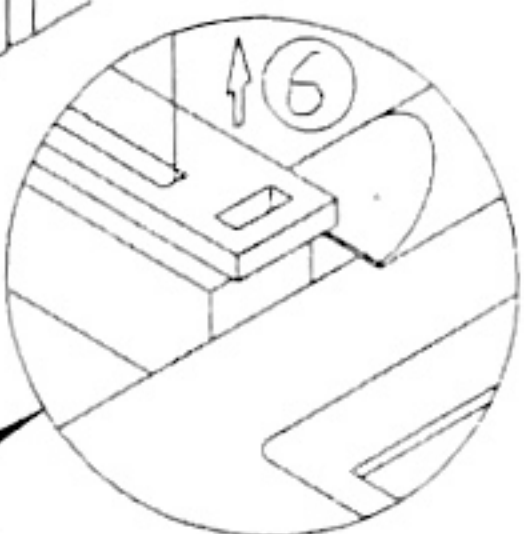
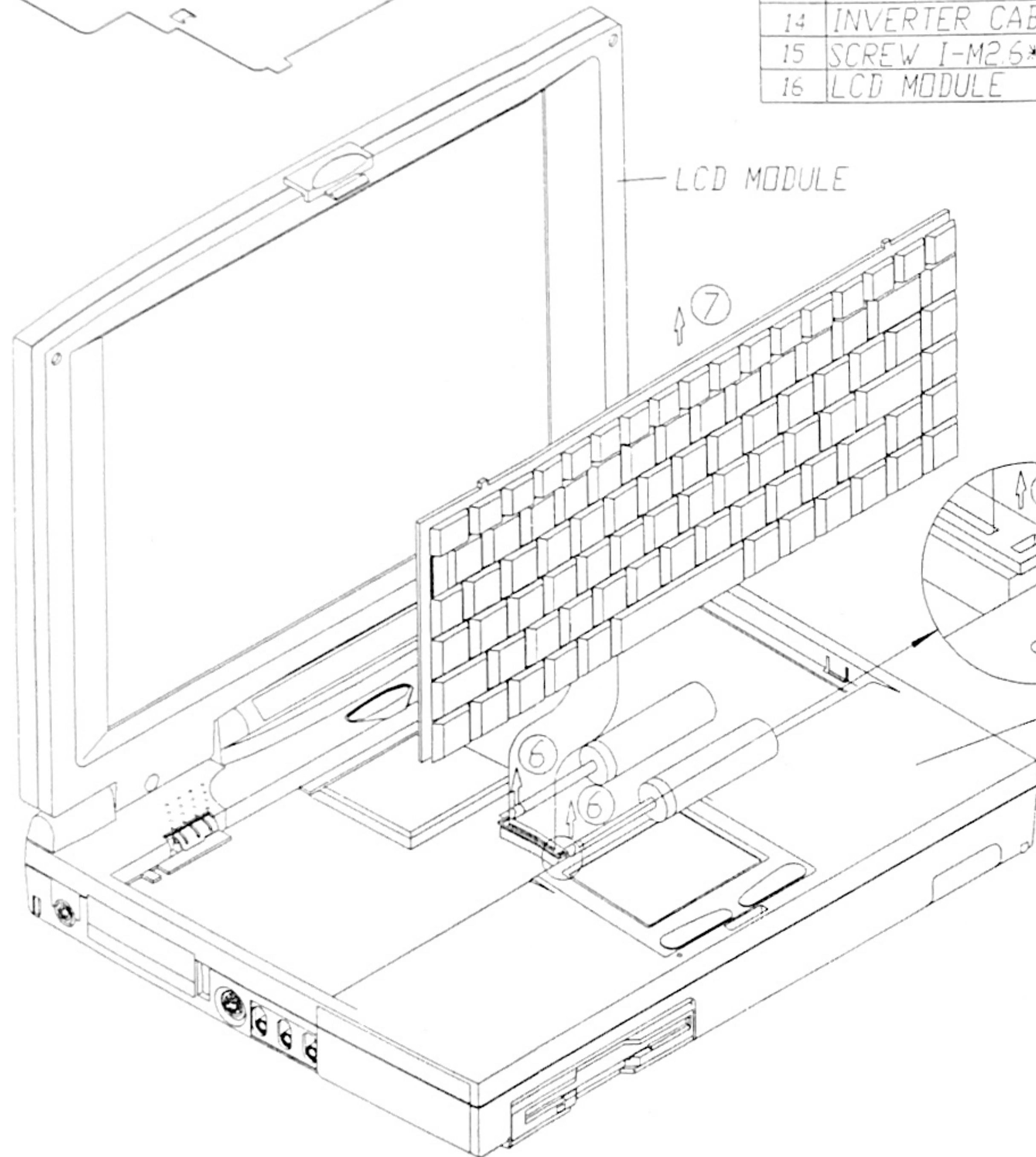
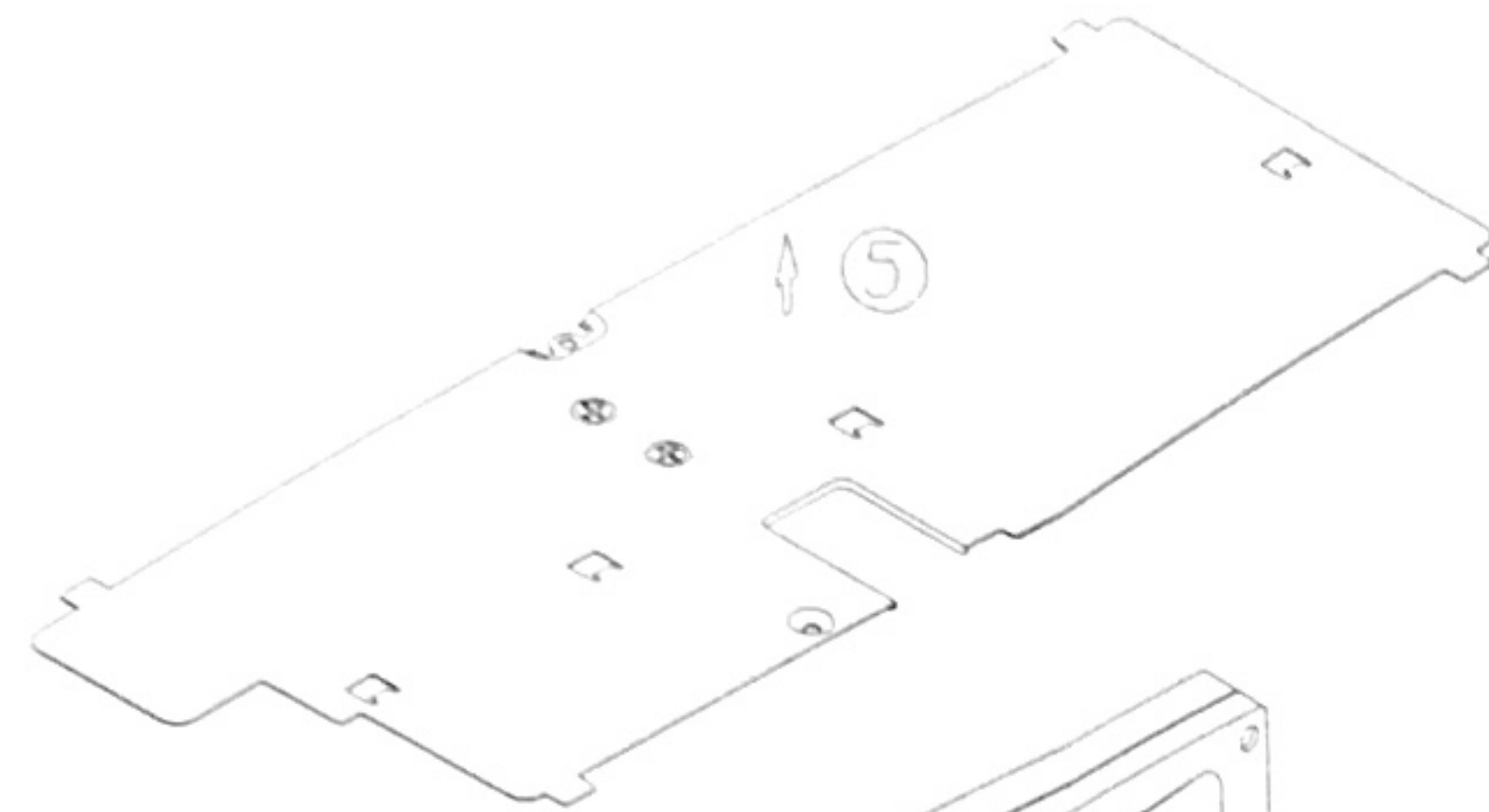


NO	PART NAME	Q'TY
1	HDD HOOK	1
2	HDD MODULE	1

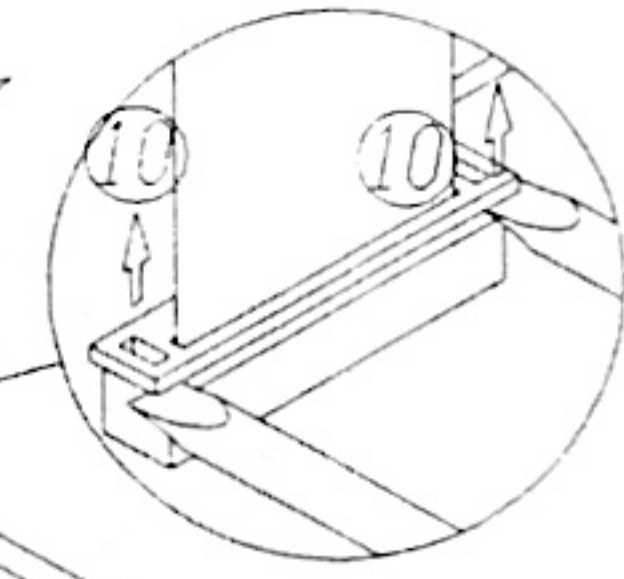
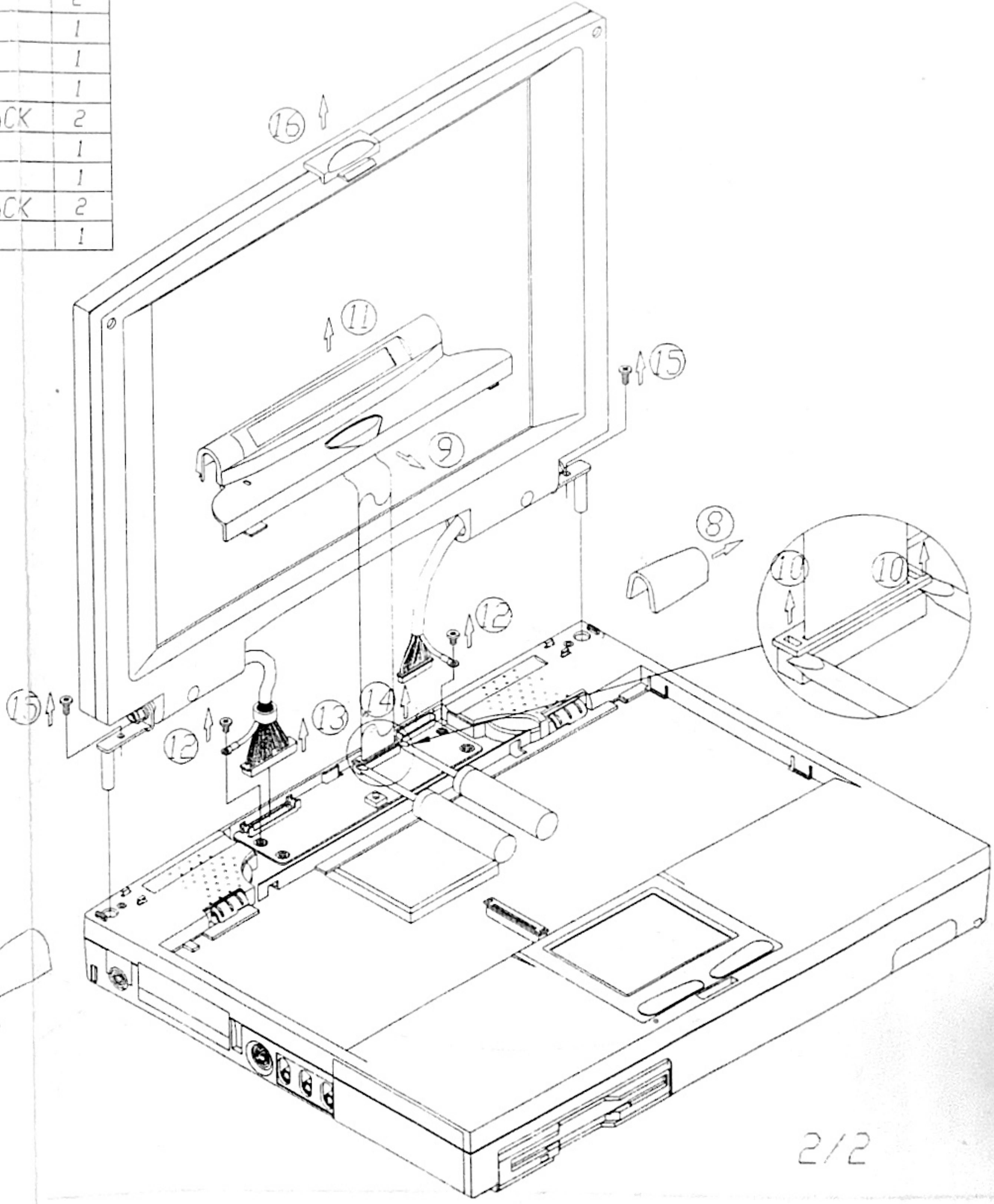


NO	PART NAME	QTY
1	HDD FPC	1
2	HDD	1
3	SCREW W-M2*0.4*3-NI	2
4	SCREW F-M3*0.5*4-BLACK	4

NO	PART NAME	Q'TY
5	CPU DISSIPATE PLATE	1
6	KEYBOARD CONNECTOR	1
7	KEYBOARD	1
8	HINGE COVER	2
9	LCM COVER	1
10	LCM CONNECTOR	1
11	LCM COVER	1
12	SCREW I-M2.6*0.45*4-BLACK	2
13	LCD CABLE	1
14	INVERTER CABLE	1
15	SCREW I-M2.6*0.45*6-BLACK	2
16	LCD MODULE	1



TOP CASE



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